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SOCIAL SOLIDARITY AND FEAR OF CRIME

Community and Individual Approaches in Responses to
Mass Violence After School Shootings

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SOCIAL SOLIDARITY AND FEAR OF CRIME – COMMUNITY AND INDIVIDUAL APPROACHES IN RESPONSES TO MASS VIOLENCE AFTER SCHOOL SHOOTINGS

ABSTRACT

The aim of this study was to examine community and individual approaches in responses to mass violence after the school shooting incidents in Jokela (November 2007) and Kauhajoki (September 2008), Finland.

In considering the community approach, responses to any shocking criminal event may have integrative, as well as disintegrative effects, within the neighborhood. The integration perspective argues that a heinous criminal event within one's community is a matter of offence to collectively held feelings and beliefs, and increases perceived solidarity; whereas the disintegration perspective suggests that a criminal event weakens the social fabric of community life by increasing fear of crime and mistrust among locals. In considering the individual approach, socio-demographic factors, such as one's gender, are typically significant indicators, which explain variation in fear of crime. Beyond this, people are not equally exposed to violent crime and therefore prior victimization and event related experiences may further explain why people differ in their sensitivity to risk from mass violence. Finally, factors related to subjective mental health, such as depressed mood, are also likely to moderate individual differences in responses to mass violence.

This study is based on the correlational design of four independent cross-sectional postal surveys. The sampling frames (N=700) for the surveys were the Finnish speaking adult population aged 18–74-years. The first mail survey in Jokela (n=330) was conducted between May and June 2008, approximately six months from the shooting incident at the local high-school. The second Jokela survey (n=278) was conducted in May–June of 2009, 18 months removed from the incident. The first survey in Kauhajoki (n=319) was collected six months after the incident at the local University of Applied Sciences, March–April 2009, and the second (n=339) in March–April 2010, approximately 18 months after the event. Linear and ordinal regression and path analysis are used as methods of analyses.

The school shootings in Jokela and Kauhajoki were extremely disturbing events, which deeply affected the communities involved. However, based on the results collected, community responses to mass violence between the two localities were different. An increase in social solidarity appears to apply in the case of the Jokela community, but not in the case of the Kauhajoki community. Thus a criminal event does not necessarily impact the wider community. Every empirical finding is most likely related to different

contextual and event-specific factors. Beyond this, community responses to mass violence in Jokela also indicated that the incident was related to a more general sense of insecurity and was also associating with perceived community deterioration and further suggests that responses to mass violence may have both integrating and disintegrating effects. Moreover, community responses to mass violence should also be examined in relation to broader social anxieties and as a proxy for generalized insecurity. Community response is an emotive process and incident related feelings are perhaps projected onto other identifiable concerns. However, this may open the door for social errors and, despite integrative effects, this may also have negative consequences within the neighborhood.

The individual approach suggests that women are more fearful than men when a threat refers to violent crime. Young women (aged 18–34) were the most worried age and gender group as concerns perception of threat from mass violence at schools compared to young men (aged 18–34), who were also the least worried age and gender group when compared to older men. It was also found that concerns about mass violence were stronger among respondents with the lowest level of monthly household income compared to financially better-off respondents. Perhaps more importantly, responses to mass violence were affected by the emotional proximity to the event; and worry about the recurrence of school shootings was stronger among respondents who either were a parent of a school-aged child, or knew a victim. Finally, results indicate that psychological wellbeing is an important individual level factor. Respondents who expressed depressed mood consistently expressed their concerns about mass violence and community deterioration.

Systematic assessments of the impact of school shooting events on communities are therefore needed. This requires the consolidation of community and individual approaches. Comparative study designs would further benefit from international collaboration across disciplines. Extreme school violence has also become a national concern and deeper understanding of crime related anxieties in contemporary Finland also requires community-based surveys.

Keywords: School shootings, social solidarity, fear of crime, survey research

SOSIAALINEN SOLIDAARISUUS JA VÄKIVALLAN PELKO – YHTEISÖLLISET JA YKSILÖLLISET REAKTIOT MASSAVÄKIVALTAAN KOULUSURMIEN JÄLKEEN

TIIVISTELMÄ

Tutkimuksessa tarkastellaan paikallisyhteisön aikuisväestön yhteisöllisiä ja yksilöllisiä reaktioita massaväkivaltaan Jokelassa marraskuussa 2007 ja Kauhajoella syyskuussa 2008 tapahtuneiden koulusurmien jälkeen.

Aikaisempien tutkimusten mukaan yhteisölliset reaktiot järkyttävään väkivaltatapah-tumaan saattavat vahvistaa yhteenkuuluvuuden tunnetta tragedian kohdanneessa paikallis-yhteisössä, sillä tapahtuman herättämien moraalitunteiden pyrkimyksenä on osaltaan korjata turvallisuuden tunteeseen aiheutunut katkos. Toisaalta omassa paikallisyhteisössä tapahtunut ja voimakkaita tunteita herättävä massaväkivalta voi myös lisätä epä-luottamusta ja ajaa yhteisön jäseniä toisistaan erilleen. Ihmisten suhtautumisessa väkivalt-arikollisuuteen on lisäksi havaittu huomattavaa yksilöllistä vaihtelua. Tietetyt sosiode-mografiset tekijät, kuten esimerkiksi naissukupuoli, ennustavat melko johdonmukaisesti voimakkaampaa väkivaltarikollisuuden aiheuttamaa huolta. Ihmiset eivät myöskään altistu samassa määrin väkivallalle. Esimerkiksi aiemmat henkilökohtaiset uhrikokemukset saattavat herkistää massaväkivallan pelolle. Aiemmat tutkimukset ovat osoittaneet, että koulusurmat aiheuttavat myös välillisiä uhrikokemuksia paikallisyhteisössä, minkä joh-dosta tapahtumaan liittyvät vahvat tunteet, kuten pelko, suru ja huoli, saatetaan kokea hen-kilökohtaisemmin. Lisäksi omassa asuinympäristössä tapahtunut massaväkivalta saattaa koetella erityisesti niitä henkilöitä, jotka kärsivät psyykkisestä kuormittuneisuudesta ja esimerkiksi masennusoireilusta.

Tämä tutkimus perustuu korrelatiiviseen tutkimusasetelmaan. Tutkimusaineiston muo-dostavat kahtena eri ajankohtana Jokelan ja Kauhajoen asukkailta postikyselyinä kerätyt poikkileikkausaineistot. Otantamenetelmänä on käytetty yksinkertaista satunnaisotantaa. Alkuperäisen otoskoon (N = 700) ovat muodostaneet Jokelan ja Kauhajoen paikallisyhteis-öjen suomenkielinen aikuisväestö (18–74-vuotiaat). Ensimmäinen postikysely Jokelassa (n = 330) toteutettiin noin puoli vuotta paikkakunnalla tapahtuneiden koulusurmien jäl-keen touko-kesäkuussa 2008. Jälkimmäinen postikyselyaineisto (n = 278) kerättiin noin puolitoista vuotta tapahtumasta touko-kesäkuussa 2009. Ensimmäinen postikysely Kauha-joella (n = 319) toteutettiin puoli vuotta Kauhajoen koulusurmien jälkeen maaliskuu-kuussa 2009. Jälkimmäinen postikyselyaineisto (n = 339) kerättiin vuoden 2010 maaliskuu-

huhtikuussa. Aineiston analyyseissa hyödynnetään yleistä ja yleistettyä lineaarista mallinusta ja polkuanalyysia.

Jokelan ja Kauhajoen koulusurmat koskettivat voimakkaasti kyseessä olevia paikallisyhteisöjä. Tulosten mukaan yhteisölliset reaktiot tapahtumiin muodostuivat kuitenkin erilaisiksi paikkakuntien välillä. Jokelan asukkaiden reaktiot tukevat osaltaan näkemystä, jonka mukaan massaväkivalta saattaa vahvistaa yhteenkuuluvuuden tunnetta asuinyhteisössä. Kauhajoella yhteisölliset reaktiot jäivät sen sijaan verrattain vähäisiksi. Tätä taustaa vasten on oletettavaa, että yhteisöllisiin reaktioihin vaikuttivat erilaiset paikallisyhteisöön ja rikostapahtumaan yhteydessä olevat erityistekijät. Toisaalta Jokelassa huoli koulusurmien toistumisesta oli myös yhteydessä omaa asuinyhteisöä kohtaan tunnettuun epäluottamukseen. Tulokset saattavat kertoa siitä, että voimakkaammin paikallisyhteisöä koskettava väkivaltainen tragedia vahvistaa sekä yhteenkuuluvuutta että ryhmäjakoja. Tapahtumaan yhteydessä olevat käsitykset ja tunteet heijastetaan herkästi erilaisiin yhteiskunnallisen epävarmuuden lähteisiin, jolloin ihmisiä yhteen sitovat tunteet saattavat tuoda esiin myös tiettyihin sosiaalisiin ryhmiin kohdistettuja ennakkoluuloja ja virhetulkintoja.

Yksilönäkökulmasta tarkasteltuna koulusurmat herättivät voimakkaampaa huolta naisissa kuin miehissä. Ikä- ja sukupuoliryhmien tarkastelussa nuoret naisvastaajat (18–34-vuotiaat) olivat eniten huolestuneita koulusurmien toistumisesta ja ero oli voimakkaimmillaan vastaavaan miesryhmään verrattuna. Koulusurmiin yhdistyvä epävarmuuden tunne osoittautui myös voimakkaammaksi henkilöillä, joiden kotitalouden ansiotulot olivat pienimmät. Yksi keskeinen havainto oli se, että koulusurmat aiheuttivat voimakkaampaa huolta vastaajissa, joilla oli kotitaloudessaan kouluikäisiä lapsia ja jotka menettivät tragediassa läheisen tai tutun henkilön. Yksilön psyykkinen hyvinvointi osoittautui vahvimaksi yksilötason selittäjäksi, sillä masennusoireet ennustivat voimakkaampaa asuinyhteisöön ja sen jäseniin kohdistuvaa epäluottamusta ja väkivallan pelkoa.

Koulusurmat ovat kansainvälinen ilmiö ja tragediat ovat koskettaneet monia paikallisyhteisöjä. Tapahtumien yhteisöllisiä vaikutuksia tarkasteleva tutkimus on kuitenkin ollut melko niukkaa. Massaväkivallan seurausten syvällisempi ymmärtäminen edellyttää yhteisöllisiä ja yksilöllisiä näkökulmia yhdistelevää ja vertailuasetelmiin perustuvaa poikkitieteellistä tutkimusta. Paikallistason väkivaltatutkimusta tarvitaan myös Suomessa, sillä massaväkivalta on mahdollisesti muodostanut uuden epävarmuuden tunteen lähteen muun väkivaltarikollisuuden rinnalle.

Asiasanat: Koulusurmat, sosiaalinen solidaarisuus, väkivallan pelko, kyselytutkimus

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Helsinki, February 2015

Miika Vuori

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LIST OF ORIGINAL PUBLICATIONS

This thesis is based on the following publications:

- I Vuori, M., & Oksanen, A., & Räsänen, P. (2013). Local responses to collective and personal crime after school shootings. *Crime, Law and Social Change*, 59 (2), 225–242.
- II Hawdon, J., & Räsänen, P., & Oksanen, A. & Vuori, M. (2014). Social responses to collective crime: Assessing the relationship between crime-related fears and collective sentiments. *European Journal of Criminology*, 11 (1), 39–56.
- III Vuori, M., & Hawdon, J., & Oksanen, A., & Räsänen, P. (2013). Collective Crime as a Source of Social Solidarity: A Tentative Test of a Functional Model for Responses to Mass Violence. *Western Criminology Review*, 14 (3), 1–15.
- IV Vuori, M., & Oksanen, A., & Räsänen, P. (2013). Fear of Crime in Local Communities after School Shootings. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 14 (2), 154–171.
- V Vuori, M. (2015). Revisiting local responses to mass violence. *Journal of Risk Research*. Published online 5 February 2015. DOI: 10.1080/13669877.2014.1003317.

The publications are referred to in the text by their roman numerals.

1 INTRODUCTION

Finnish society was left in a deep state of shock after the school shooting incidents that took place in two separate rural communities. On November 7, 2007, an 18-year-old man killed eight people before committing suicide at a local high-school in the population center Jokela. The following year, on September 23, 2008, the town of Kauhajoki faced a similar tragedy. A 22-year-old man entered his school at the Seinäjoki University of Applied Sciences campus there and shot dead ten persons before fatally shooting himself. The perpetrators glamorized and imitated the Columbine high-school (1999) and Virginia Tech (2007) shootings – the more deadly incident that took place just seven months before the Jokela incident – and repeated the thoughts and manifestations of becoming famous through notorious violence, as other school shooters had done before (Kivivuori 2008, 244–246; Investigation Commission of the Jokela School Shooting 2009, 9; Hawdon et al. 2012a, 8–9; Böckler et al. 2013, 12; Sandberg et al. 2014, 286, 290). In addition to the shootings in Jokela and Kauhajoki, between November 2007 and April 2009, there had been 225 police-reported school threats in Finland (Investigation Commission of the Kauhajoki School Shooting 2010, 104).

Mass violence at schools is a major concern in many contemporary societies and such incidents have created notable research interest (Larkin 2009; Bondü et al. 2011; Hawdon et al. 2012a; Rocque 2012; Böckler et al. 2013; Shultz et al. 2014). The USA alone has witnessed over 70 incidents involving a situation in which a current or former student has fired on peers and/or school staff in an attempt to injure or kill more than one person. Yet, over 40 similar incidents have been reported outside the United States in at least 23 countries. In 2008, there was a larger concentration of incidents and Kauhajoki was among the nine events that occurred globally. It is further estimated that there have been at least 68 mass shooting incidents throughout the world after the shootings of Columbine high-school in 1999 (see Böckler et al. 2013, 7–12; Sandberg et al. 2014, 278–281). The terms “Columbine-effect,” “Columbine legacy” and “Post-Columbine era,” are therefore consistently used as a reference to contemporary climates driven by anxiety about rare, yet horrific, events. The “Columbine-effect” also refers to irrational and punitive official responses aimed at preventing extreme, mass violence at schools (Larkin 2009, 1312,

1317–1319; Muschert & Peguero 2010; Muschert & Madfis 2012, 13–14; Elsass et al. 2014; Sandberg 2014, 289).

For most of the population, rampage school shootings are presented and experienced via the media. Rare and shocking criminal events involve strong emotions such as fear, sadness and anxiety, and the public sense of insecurity is further enhanced due to disproportionate and intensive news accounts of events (Kiilakoski & Oksanen 2011b; Lindgren 2011; Hawdon et al. 2012c; Muschert & Sumiala 2012; Muschert & Madfis 2012). As a result, public responses might result in exaggerated risk perceptions because the focus is easily on the horror and “badness of the outcomes” (Sunstein 2003). Notwithstanding, the relationship between the criminal event, media reports and public responses to crime are also somewhat contentious topics. Individual and collective judgments are moderated by various individual, psychological and contextual attributes, and not only by excessive media representations or heavy media consumption on their own (Conklin 1975, 25; Heath & Gilbert 1996; Chiricos et al. 1997; Callanan 2005; Chadee & Ditton 2005; Smolej 2011; Hawdon et al. 2012c).

Above all, the shooting incidents in Jokela and Kauhajokki were also limited events that affected a single community at a time (Shultz et al. 2014, 13). In contrast to most of the population, it could be expected that Jokela and Kauhajokki residents have found it more difficult to distant themselves from what has happened. Consequently, possible outbreaks of anger, sadness and insecurity may have a stronger connotation and relevance within the Jokela and Kauhajokki communities (Warr 2000, 460; Kim et al. 2013). Perhaps more importantly, living in a neighborhood where an “attention-focusing” incident has occurred is likely to associate with perceived community solidarity and belonging, which, for its part, shapes individual judgments of insecurity and fear of crime (Innes 2004; Banks 2005; Hawdon et al. 2010).

The purpose of the present study is therefore to contribute to prior research from community response to rampage school shootings perspective in several ways. There is a clear need to analyze emotional responses to community violence (Gray et al. 2011). However, only over recent years, have the different consequences of mass violence at local schools on the community been addressed (Hawdon et al. 2012a; Böckler et al. 2013). Meanwhile, research has also taken an interest in students’ feelings towards crime in the aftermath of incidents (Kaminski et al. 2010; Elsass et al. 2014). The present study

examines the linkage between perceptions of community solidarity and fear of crime among the adult population more closely. In this respect, the study follows the Anglo-Saxon field of community criminology by enhancing the need for examining the association between a criminal event and the place where the event occurred (Pain 2000; Innes 2004; Banks 2005; Walklate & Mythen 2008; Farrall et al. 2009; Lorenc et al. 2013a).

The starting-point is the notion that perceived social solidarity is among the most important factors when considering community responses to mass violence (Lorenc et al. 2013a). The integration perspective further proposes that community responses to an incident can bring its members together in an outpouring of social solidarity (Durkheim [1893] 1997), whereas the disintegration perspective argues that an event is perhaps more likely to weaken the community's life by increasing fear of crime and mistrust among locals (Conklin 1975). In considering the individual approach, specific socio-demographic factors such as being female are relatively robust predictors of individual variation in responses to violent crime (Farrall et al. 2009). Further, although emotional proximity to an event is somewhat strong, incident-related consequences may also vary within a community. For example, the loss or the threat of loss of someone close might have a different effect on individual responses and recovery. School shootings may also pose a more serious perceived threat to parents of school-aged children (Warr 2000; Aisenberg & Ell 2005; Shultz et al. 2014). Exposure to mass violence is also related to mental health problems. Therefore studies should account for emotional differences (e.g. depressed mood) between individuals as they appear to affect both perceived community solidarity and risk of violence (Jackson & Stafford 2009; Lorenc et al. 2014). The data consist of four comparative mail surveys conducted in the Finnish communities of Jokela and Kauhajoki over the time-period 2008–2010, providing an important cross-national and correlational study design.

2 REVIEW OF THE LITERATURE

2.1 Prior research in school shootings

Research on school shootings has been a rapidly growing international research field. To date, there are reviews available, for example, on rampage school shootings in the United States (Kimmel & Mahler 2003; Muschert 2007a; Rocque 2012) as well as on the mental health effects of incidents (Shultz et al. 2014). Scholars have also recently examined the global prevalence of school shooting incidents and international trends in a more detailed way (Böckler et al. 2013). Rampage school shootings have predominantly occurred in modern Western societies, while the severity of school shooting incidents, in terms of the number of victims per incident, as well as the number of attempted mass shootings, has increased (Böckler et al. 2013, 9–12; Agnich 2014; Sommer et al. 2014). Incidents have also become a major cultural phenomenon in “mediatized” contemporary societies affecting many people without being directly and personally involved (see Muschert & Sumiala 2012). Furthermore, due to the disproportional media coverage of school shooting incidents, a shift in the sense of insecurity and fear (of crime) appears to be apparent (Warr 2000, 455, 460; Maguire et al. 2002; Chyi & McCombs 2004; Muschert 2009; Altheide 2009; Barbieri & Connell 2014; Elsass et al. 2014; Schildkraut & Muschert 2014).

Understandably, research in school shootings has focused strongly on the causes behind such incidents. Although this kind of mass violence is complexly determined, studies have detected different psychological and social risk factors, which may all play a vital role (Verlinden et al. 2000; Newman et al. 2004; Bondü et al. 2011; Lindberg et al. 2012; Rocque 2012; Böckler et al. 2013; Sandberg et al. 2014). Psychological explanations are among the most common contemplations. However, results indicate that the profiles of the perpetrators are somewhat heterogeneous. Some of the perpetrators have had a traumatic family history involving mistreatment. There are also implications that a narcissistic personality is more common among perpetrators than among the general population. Some of the offenders have also suffered from serious mental illnesses such as psychosis or suicidal intentions, but some may simply get a sadistic thrill from violence (see Wike &

Fraser 2009, 165; Lindberg et al. 2012; Rocque 2012, 306–308; Bondü & Scheithauer 2014b; Bondü & Scheithauer 2014c; Sandberg et al. 2014, 284). On many occasions, perpetrators have also had a history of interpersonal troubles in school environments and with their peers (Vossekuil et al. 2002; Kimmel & Mahler 2003; Newman et al. 2004; Wike & Fraser 2009, 165; Kiilakoski & Oksanen 2011a; Lindberg et al. 2012); however, some of the perpetrators have been well integrated and have had friends (Bondü & Scheithauer 2014b). A recent in-depth study, which examined 126 incidents from 13 countries, concluded that although social conflicts within the school environment are very common among perpetrators, conflicts with school staff are also important mediating factors (Sommer et al. 2014).

Perpetrators are further characterized by their fascination with guns (Wike & Fraser 2009, 164). Above all, different individual and situational risk factors are perhaps needed before individually experienced strain accumulates and results in a horrific act of violence (Levin & Madfis 2009; Wike & Fraser 2009; Dill et al. 2011; Bondü et al. 2013). Perpetrators appear to experience a sense of alienation and loss of social valence, and the act is perhaps further supported by violent representations of masculinity and a “sense of aggrieved entitlement” (Kimmel & Mahler 2003; Levin & Madfis 2009; Böckler et al. 2013; Bondü et al. 2013; Schultz et al. 2014). Due to the fact that roughly three-quarters of the shooters have been aged between 12 and 21 – and 97 % were male – there have been many studies focusing on the gendered aspects of rampage school shootings (Levin & Madfis 2009; Kalish & Kimmel 2010; Kantola et al. 2011; Bondü et al. 2013; Madfis 2014b).

Public discussions of the causes of school shooting incidents are strongly linked to arguments about the availability of guns and violent video games (Rocque 2012, 308; Lindström et al. 2012; Shultz et al. 2014). Scholars have further addressed the issue that rushed judgments and responses to mass violence at schools may involve repressive strategies and result in negative counterproductive consequences (Schildkraut & Muschert 2014; Shultz et al. 2014). For example, schools have adopted practices, which may result in detrimental effects (Wike & Fraser 2009, 168; Muschert & Peguero 2010; Cornell & Allen 2011; Muschert & Madfis 2012). Further, focusing solely on security measures and surveillance may neglect the issues regarding victimization and social hierarchies within

schools (Addington 2009; Henry 2009; Kalish & Kimmel 2010; Kiilakoski & Oksanen 2011a).

School shooting incidents are further discussed in conjunction with the concept of the “code of silence”, which is used to refer to a problematic community that maintains an atmosphere of social mistrust. A code of silence may, for example, discourage students from sharing their concerns about peers to adults. This may also add to the negative consequences that follow in the aftermath of shootings (Investigation Commission of the Jokela School Shooting 2009, 110; Wike & Fraser 2009, 167; Nurmi et al. 2012, 314; Madfis 2014a). On the other hand, school staff may also need training on how to react appropriately when someone signals their intentions of committing a violent offence (Bondü & Scheithauer 2014b), as it appears that school shooters often express and leak their intentions in many ways well before the act (Bondü & Scheithauer 2014a).

In considering individual and community effects of mass violence, prior research has indicated that event related emotional stress is associating with personal injury or the loss of a friend (Hughes et al. 2011; Shultz et al. 2014). The National Institute for Health and Welfare of Finland conducted a prospective cohort study in order to examine more closely the students who were exposed to the incidents in Jokela and Kauhajoki (Haravuori et al. 2012). The results indicate that students had recuperated relatively well from the tragic incidents. Another research group found similar results when they examined the prevalence of posttraumatic stress disorder (PTSD) among students after the Virginia Tech (2007) incident (Hughes et al. 2011). Perhaps more importantly, stronger social networks before and after the incidents appear to make event related emotional distress less probable (Hughes et al. 2011; Haravuori et al. 2012; Shultz et al. 2014; see also Hawdon & Ryan 2012).

On the other hand, elevated levels of emotional stress are perhaps more probable among individuals who are more seriously exposed to the incidents (Shultz et al. 2014, 11). According to Finnish and US-based studies, approximately 10 to 15 percent of the students, respectively, expressed trauma-induced symptoms at the end of follow-up period (Hughes et al. 2011; Haravuori et al. 2012). In addition to this, it is possible that some of the negative consequences are, perhaps, produced post-event. It appears that media reporters are likely to use person generated news content in the aftermath of school shooting incidents (Wigley & Fontenot 2010; Hawdon et al. 2012c), but being interviewed

after a trauma-inducing event may associate negatively with individual and community recovery (Haravuori et al. 2012, 32–33). In Finland, the insensitive behavior of some journalists was criticized after the incident in Jokela. As a result, the Investigation Commission (2009) recommended stricter self-regulation in order to improve the work of media representatives (see also Raittila et al. 2010).

Although the use of social media relates to increased concerns about school shooting incidents among students (Elsass et al. 2014), it appears, however, that these types of incidents have not created widespread fear of crime among students (Addington 2003; Fox et al. 2009; Kaminski et al. 2010). In considering the National Crime Victimization Surveys (NCVS) – measured in 2006 and 2009 in Finland – the results suggest that the Jokela and Kauhajoki incidents may not at least have affected individual concerns about common types of crime (Sirén et al. 2010). Therefore, responses to incidents are perhaps partially dependent on different macro-level factors such as social welfare policy. In their comparative analyses of European states, Hummelsheim and her associates (2011) discovered that the national levels of social expenditures are likely to buffer the sense of insecurity among citizens (see also Vieno et al. 2013, 527). This may further explain why there has not been a growth in security measures in Finnish educational establishments compared to the United States (Addington 2009). Barbieri and Connell's (2014) content analysis of media coverage also concluded that the German media was more likely to enhance state level interventions when compared to American media content.

In summary, there are recent case studies available (see Böckler et al. 2013, 159–261), yet there is also a strong need for research on community response to school shootings in order to understand the possible effects and consequences of incidents among the adult population (Muschert 2007a; Shultz et al. 2014). The present study aims to extend our prior knowledge about community response to school shootings (e.g. Hawdon et al. 2010; Hawdon & Ryan 2011; Nurmi 2012; Nurmi et al. 2012; Hawdon et al. 2012b) by consolidating community and individual approaches in responses to mass violence into a single piece. Moreover, the study at hand specifically focuses on the relationship between perceptions of social solidarity and a criminal event.

2.2 Community, and social solidarity

The concept of community is rather contentious and “fulfilled by the very idea of community in a great variety situations” (Delanty 2003, 194). However, the present study focuses on relatively small neighborhoods, both geographically and population-wise, which have been scenes of similar incidents of mass violence. Thus the concept of community in this study is somewhat traditional and refers to a certain time and place as well as personal thoughts, expressions and interpersonal and media-related communicative processes (Pain 2000; Girling et al. 2001; Delanty 2003, 195; Banks 2005).

Scholars may emphasize behavioral aspects, such as the frequency of activity within a neighborhood, but most of the research focuses specifically on emotional attachment to one’s own community. Perceptions of social solidarity – also referred to as perceived social integration or community cohesion – typically relate to cognitive aspects and individual ability to acknowledge the core features of the community, such as reciprocity and mutual trust (Skogan & Maxfield 1981; Hale 1996; Jackson 2004; Farrall et al. 2009; Hawdon et al. 2010).

Criminologists have pointed out that individuals are likely to perceive criminal events as a distant problem (Conklin 1975, 30–33; Ferraro 1995, 46). However, this thesis no longer correlates in the context of rampage school shootings, as they are dramatic and “attention-focusing events” (Innes 2004; Hawdon et al. 2010, 699). The extent of the tragedy and the fact that the community is menaced from within, makes it difficult to maintain a “perceptual distance” from the event. This is further affected by the way in which rampage school shootings are committed (Ferraro 1995, 47; Shultz et al. 2014). Under such circumstances, individual judgments about community violence typically represent a complex set of responses to the neighborhood (Pain 2000; Innes 2004; Lorenc et al. 2013a). Due to the collective relevance of the school shootings, judgments are particularly comprised of making sense about the neighborhood characteristics, including symbolic links between perceived social solidarity and the event (Durkheim [1893] 1997; Conklin 1975, 9–10; Hale 1996, 113–119; Farrall et al. 2009; Hawdon et al. 2010; Lorenc et al. 2013a).

2.3 Crime as an event

The concept of crime may refer to a set of different and culturally variant acts that are considered deviant. For example, a distinction could be made on the basis of whether crime refers to acts that are committed against property or people (Gottfredson & Hirschi 1990, xiii–xiv; Kivivuori 2008, 21–27; Tierney 2010, 14–15). Consequently, scholars also examine individual concerns about property and personal crime as distinct, yet related, phenomena (Ferraro 1995, 37; Jackson 2005, 305).

Present studies focus on responses to personal crime. Above all, the conceptualization of crime is influenced by the victimization perspective, according to which the crime is defined as an event, instead of as an act. Yet, when defining an event, attention is easily focused solely on an offender(s), whereas the victimization perspective posits that studies should also bring an approach that takes into account the interaction among the perpetrator(s), victims and surrounding community (see Gottfredson & Hirschi 1990, 14; Lewis 1996, 104; Tierney 2010, 19; Agnew 2011, 25). An event refers to the suddenness and unanticipated nature of school shooting incidents and enables one to “point out the unexpected and unpredictable features of a certain occurrence.” School shooting incidents occur at a certain place and time, but they also affect different individual interpretations of the future (Kiilakoski et al. 2014, 347).

Henry and Lanier’s (1998, 622) “prism of crime” further illustrates that social agreement, probable social response, individual and social harm, and the extent of victimization are perhaps the most important dimensions for framing criminal events. For example, when compared to property crime, school shooting incidents are clearly considered serious and horrific. There is a strong moral degree of consensus that incidents violate the common moral conscience and moral community by causing the most serious harm (Henry & Lanier 1998, 623; Haidt 2007, 1000). Thus, incidents receive serious responses, ranging from lay people to state officials, and provoke notable debate as well as media attention (see Muschert & Sumiala 2012; Böckler et al. 2013). In addition, school shootings involve multiple victims and therefore harm many persons at a specific time and place. In other words, school shooting incidents are both directly and indirectly extremely harmful, and cause both severe individual and social harm (Henry & Lanier 1998, 617–

618, 622; Warr 2000, 455; Hawdon et al. 2010, 698), and the whole community is perhaps perceived and constructed as a victim (Nurmi 2012).

2.3.1 Community violence

In this study, personal crime clearly refers to criminal events defined as violent. Although some scholars have posited that a universal definition of violence is perhaps not possible because violence is a “multidimensional reality,” others emphasize the need to seek clarity regarding the use and meaning of the concept (Aisenberg et al. 2011; Bufacchi 2011). A definition of violence should further provide more systematic means of assessing responses to violent events. Therefore, similar to that of the victimization perspective, definitions of violence should consider the presenting context and specific form of violence as well as the community specific meanings attached to it (e.g. Aisenberg et al. 2011, 20–21).

The World Health Organization (WHO, 2002) defines violence as “intentional use of physical force or power, threatened or actual, against oneself, another person, or against group or community that either results in or has a likelihood of resulting injury, death, and psychological harm.” The WHO’s typology differentiates (a) self-directed, (b) collective and (c) interpersonal violence further into separate categories (Ibid. 5–6). In considering the typology, self-directed and collective violence are not the main subject of this study, although school shooting incidents relate to both categories. For example, incidents have often resulted in the suicide of the perpetrator (e.g. Hawdon et al. 2010; Oksanen et al. 2010; Langman 2013). Terrorism, on the other hand, is an example of collective violence and rampage school shootings have been considered as terrorism (Altheide 2009), but not across all cultural contexts (Kiilakoski & Oksanen 2011a; Malkki 2014).

Present study relates to the interpersonal violence category in particular, which is further divided into family/intimate partner violence and community violence by focusing on the latter (WHO 2002, 6). Community violence is defined as an exposure to violence, which takes place outside a person’s home. It causes severe individual and social harm by involving direct (e.g. personal victimization) and indirect (e.g. witnessing violence) experiences (Henry & Lanier 1998, 622). However, community violence typically refers to street crime, which is among the most condemned forms of community violence and

one of the main focuses of crime control agencies. It is a type of violence that also receives significant attention from the media (Gottfredson & Hirschi 1990, 15–16; Agnew 2011, 15; Aisenberg et al. 2011, 17–18).

2.3.2 Rampage school shootings

Rampage school shootings are further defined as a subcategory of mass violence, as the incidents involve multiple victims at a single public place (Böckler et al. 2013, 4–5). Rampage school shootings can also be considered as community violence, because the incident takes place at a local educational establishment and has an effect on the surrounding community (Aisenberg & Ell 2005; Nurmi et al. 2012). Muschert's (2007a) typology further argues that targeted school shootings are aimed at certain individuals, whereas rampage school shootings are attacks on a local institution and committed by a member of that institution. Therefore rampage school shootings involve multiple victims, some of them perhaps deliberately selected, whereas other victims are selected at random and/or for symbolic reasons. Given that most of the perpetrators of rampage school shootings have resided where the school is located, "the rationale of attacking the school can be understood as an attempt to attack the community" in addition to the initially intended target (Ibid. 62–63; see also Böckler et al. 2013, 5; Sandberg et al. 2014; Shultz et al. 2014). Prior planning also appears to make rampage school shootings distinguishable from random, rampage killing incidents (Böckler et al. 2013, 4).

Muschert (2007a, 62) further distinguishes rampage school shootings from terrorist attacks. Yet, rampage school shootings in educational institutions are referred to as "overtly political acts". Many of the incidents have involved long and detailed preparation. Actions are further aimed at one's peers, staff and the surrounding community, and some of the perpetrators have expressed their desire to reach the public by describing their political motives. A high death toll also appears to be an important motive of perpetrators (Muschert 2007a; Larkin 2009; Kiilakoski & Oksanen 2011b; Bondü et al. 2013, 343–344; Sandberg et al. 2014, 285–290). Further, similar to that of "crimes of hate committed by organized groups" such as terrorism (WHO 2002, 6), perpetrators have also identified themselves and planned their acts, at least to some extent, with the help of like-minded hate groups (Kivivuori 2008, 244–246; Investigation

Commission of the Jokela School Shooting 2009, 46–47; Semenov et al. 2010; Hawdon 2012, 44; Lindberg et al. 2012; Sandberg et al. 2014). Interestingly, rampage school shootings have been described as being equivalent to terrorism, at least in the United States (Altheide 2009), whereas events in Finland were not considered to be acts of domestic terrorism, although the offenders, in particular in the Jokela case, emphasized the event as a political act (Larkin 2009; Kiilakoski & Oksanen 2011a; Kiilakoski & Oksanen 2011b; Malkki 2014). Notwithstanding, there appears to be a somewhat clear distinction between rampage school shootings and terrorist attacks, as rampage school shootings are typically committed by adolescent perpetrators and they involve a greater role for personal motives and self-centeredness without affiliation with a political group (Larkin 2009, 1312; Böckler et al. 2013, 4–5; Sandberg et al. 2014, 290).

2.4 Fear of crime

Much of the contemporary approach on responses to criminal events draws from fear of crime literature. The history of the research is based on individual and social reactions to crime – also referred to as the genesis of the contemporary idea of fear of crime – is further detailed in numerous studies (Conklin 1975; Garofalo & Laub 1979; Skogan & Maxfield 1981; Lewis & Salem 1986; Hale 1996; Lewis 1996; Lee 2007; Farrall et al. 2009; Gray et al. 2011). The Crime Commission on Law Enforcement and the Administration of Justice in the United States was initiated in the 1960's. Among other issues, the Commission's main report in 1967 addressed that “a necessary part of the effort is to study, as carefully as possible the anxiety itself.... what aspects of crime Americans are anxious about, and whether their anxiety is a realistic response to actual danger...” (cf. Farrall et al. 2009, 23; Lewis & Salem 1986, 4–6).

The pilot study from 1967 was the first survey that introduced measures for public attitudes towards crime and that measured subjective concerns about victimization and perceptions of community characteristics (Farrall et al. 2009, 24). It has embarked on a numerous research projects, with particular emphasis on the distribution of the fear of crime among socio-demographic groups (e.g. Lee 2007). In Finland, National Crime Victimization Surveys have measured public attitudes toward crime every third year since 1988 (Heiskanen 2002, 180; Sirén et al. 2010; Sirén et al. 2013).

2.4.1 Fear and anxiety

From the beginning of this type of research, there has been an ongoing debate on how to accurately measure public attitudes toward crime (see Ferraro 1995; Hale 1996; Farrall et al. 1997; Warr 2000; Heiskanen 2002; Jackson 2004; Gray et al. 2008; Vanderveen 2008; Tierney 2010, 46–47; Gray et al. 2011). Much of the early criticism was due to use of the so-called “global indicator.” The validity of the unidimensional measure (i.e. “How safe do you feel or would you feel being alone in your neighborhood at night”) was criticized by many scholars as it does not specifically refer to crime. Neither does the global indicator tap into different emotional elements in fear of crime. Indeed, scholars have noted that the first surveys were specifically aimed at measuring a less defined public “anxiety about crime” (Farrall et al. 2009, 46–47). It is further noteworthy that the first measure was called an *Index of Anxiety* (Lewis & Salem 1986, 5).

The usage of anxiety and fear as more or less parallel concepts raises some important issues. Fear as a general human disposition is different from fear as an actual emotion. Although fear is typically considered a basic emotion (Turner & Stets 2005, 14–15), it also appears to be a less frequent everyday emotion felt by individuals in modern societies (Scherer et al. 2004; Ben-Ze’ev & Revhon 2004). Fear is closely related to feelings of anxiety and associating with individual conceptions that something bad can happen. Yet, despite the relative co-occurrence, the two emotional states also present some pertinent differences. Chiefly, fear refers to human evolution and the primitive responses of individuals shaped by actual dangers and clearly involves immediate physical response to an imminent threat (Moons et al. 2010; see also Turner & Stets 2005, 4–5; Öhman 2008). Anxiety, however, refers to potential dangers and has a more or less generalized and “free-floating” character. It is further argued that anxiety reveals less definite feelings of uncertainty and may lack an object, or at least the interpretation of the object of anxiety is undefined (Jefferson & Hollway 2000, 47; Öhman 2008, 710; Svendsen 2008, 43–46, 55).

2.4.2 Expression and experience in responses to violent crime

Criminologists have long been interested in the unreported and underreported “dark figures” of crime which are not reported by the police. Early focus was on the

victimization–fear of crime linkage in particular (Lewis & Salem 1986, 4; Tierney 2010, 29). The victimization thesis has been one of the earliest propositions for explaining individual variation in worry about crime (Farrall et al. 2009, 82–83). However, scholars soon concluded that the responses to crime and criminal events were not solely drawn from the threat of personal victimization, but also associating with individual judgments and thoughts about stranger(s), and, even more so, community characteristics; and about what is taking place within one’s community. Theoretical postulations were adopted from the social disorganization perspective as introduced by the sociologists of the Chicago School in the 1920’s (Conklin 1975, 91–94; Lewis & Salem 1986: xiii, 11–12; Lewis 1996: 97–98, 103; Farrall et al. 2009, 48, 91–101).

Surveys have long suggested that fear of crime is a relatively common social problem in contemporary times (see Hale 1996; Farrall et al. 1999; Farrall et al. 2009). However, on the basis of recent quantitative and qualitative reviews, there appears to be only a minority of individuals who report fear of crime as a frequent worry, which has serious impact on personal wellbeing (Farrall et al. 2009; Lorenc et al. 2013a). Interestingly, similar questions are addressed elsewhere too, as the clinical guideline of “excessive worry” is also a troubling topic in the psychiatric research field (Andrews et al. 2010).

As a result, criminologists have proposed new survey measures, which stem from the event sampling methodology used in emotion research (Scherer et al. 2004; Jackson 2004; 2005). By using a filter question and measuring self-expressed emotional episodes (being worried about crime) over the past year, scholars are trying to separate “a diffuse set of concerns from the immediate sense of threat” in a more detailed way (Gray et al. 2008; Farrall et al. 2009, 51, 176–177, 241). Frequency measures were also introduced in the recent Finnish National Crime Victimization Surveys (Sirén et al. 2013).

According to the above argument, it can be concluded that expressed fear of crime and experienced fear of crime are different concepts and phenomena, yet they are, nonetheless, related (Jackson 2004). For many, attitudes toward crime reflect expressive anxieties about the social solidarity and sense of moral stability in communities. This conclusion notwithstanding, for some individuals worry about crime presents everyday emotional states of worry, which relate strongly to personal and vicarious crime experiences (Farrall et al. 2009, 238).

2.4.3 Worry and evaluation of criminal events

In surveys, individual judgments are likely to range from personal beliefs and feelings to more general attitudes about the topic at hand (Tourangeau et al. 2000, 194; Farrall et al. 2009, 55–56). When specifying an emotion in survey settings, both British and Finnish NCVS statistics measure fear of crime by asking about worry (e.g. Heiskanen 2002; Farrall et al. 2009), whereas US surveys appear to specify an emotion by asking the respondents “how afraid” they are (e.g. Ferraro 1995).

As discussed earlier, fear is a strong emotion and likely to occur in natural settings and therefore the term worry is preferable. Warr (2000) posits that the intensity of worry (about crime) represents future orientated anxiety instead of current feelings or past emotional episodes (Ibid. 453–455). However, worry also taps into general and common emotional responses, and “describes rumination about future events and immediate response to the current situation” (Farrall et al. 2009, 50, 51, 65–66). Worry may have some profound relevance when it comes to individual judgments of potential threats. Worry is perhaps evoked when a person thinks about a specific event. It could be also argued that the intensity of worry is dependent on, at least to some extent, how often an individual is thinking about the named object (Rundmo 2002, 119; Gabriel & Greve 2003).

This interpretation is further supported by the appraisal theory of emotions, which is based on the idea that individual responses are affected by evaluations of events. Most importantly, emotional responses associate with individual assessments of contextual circumstances. Evaluations, which have personal relevance and come tagged with affect, are among the key elements of emotional response (Ellsworth & Scherer 2003, 572–573; Slovic et al. 2004, 317). Therefore, vicarious experiences should not be overlooked either. People may know someone who has experienced violence, not to mention the notion that individuals also worry about their loved ones (Warr & Ellison 2000). Thus, uncertainty, unpredictability and the extent of an event’s devastation are perhaps the most important components here, as they affect individual feelings of what may happen, and may also relate to an individual sense of control and coping, which moderate individual concerns about a given event(s) (Ellsworth & Scherer 2003, 575, 584; Slovic et al. 2004, 313–314; Jackson 2011, 517–518).

2.4.4 Psychological wellbeing and worry

It is also noteworthy that emotional states such as fear, worry and anxiety are distinguishable for being transitory and being of limited duration. Personality trait differences, however, relate to the fact that certain individuals are more likely to express and experience certain emotional states across time and in different situations (Gabriel & Greve 2003; Öhman 2008). Consequently, “situational” emotional states of fear of crime are different from “dispositional” fear of crime (Gabriel & Greve 2003). Crime related experiences, for instance, may have an effect on an individual’s disposition and tendency to experience and express certain emotions in the future (Ibid. 601; Öhman 2008). However, it is not an easy task to identify stable individual traits that predispose emotional responses (Ellsworth & Scherer 2003, 584).

Furthermore, responses to violent crime and uncommon events are perhaps affected by a pre-existing mood (Rottenberg 2005; Lorenc et al. 2014). Depressed mood, as defined by the WHO’s International Classification of Diseases (ICD-10), refers to person’s low mood and decrease in individual activity, which typically associates with “somatic” symptoms, such as loss of appetite and sleep disturbances. Lowered mood is expected to vary relatively little from day to day, while a clinically significant depressed mood (i.e. depressive episode) – specified mild, moderate and severe depending on symptom severity – usually lasts at least for two weeks and is defined as a mood disorder. In considering that emotion and mood are easily confused, mood relates to a more diffuse state of feeling, which may last from hours to days (Rottenberg & Gross 2003; Rottenberg 2005).

Depressed mood often associates with a state anxiety and further drives negative situational appraisals such as pessimism (Rottenberg 2005; Bylsma et al. 2011). However, a more severe symptomatology (i.e. major depressive disorder) is strongly related to reduced positive and negative reactivity and suggests that a person has very little interest in their environment (e.g. Bylsma et al. 2008). A depressed mood–anxiety co-occurrence is also likely to result in stronger individual feelings of worry (Andrews et al. 2010). Moreover, there are also relatively persistent differences between individuals based on anxiety (Lerner & Keltner 2001; Öhman 2008, 710). It is further argued that pessimism and anxiety relate to a decreased individual sense of control, which moderates stronger perceived unpredictability (Lerner et al. 2003). Overall, anxious persons are more prone to pay attention to threatening social and physical cues compared with non-anxious

individuals. Because anxious individuals are more likely to use negative control and certainty appraisals, a decreased sense of control further enhances individual worry (Lerner & Keltner 2000; Lerner & Keltner 2001; Gabriel & Greve 2003).

2.4.5 Significance of anger

Different appraisals of an event contribute to the quality and intensity of emotion. It should also be noted that anger is a basic emotion and relatively common emotional state, especially when compared to fear (Scherer et al. 2004, 516). It could be further expected that worry and anger are more strongly associating with community violence and rampage school shootings. Indeed, individuals are actually more likely to express their anger toward crime than being afraid it (Ditton et al. 1999a; Ditton et al. 1999b, 43, 51; Farrall 2004, 160–163). In this event, anger is referred to a general attitude to the prospect of victimization. Further, when a criminal event is considered to have personal relevance, specifying anger toward crime in survey settings is by no means an easy task (Ditton et al. 1999a; Ellsworth & Scherer 2003).

Furthermore, anger as well as anger related worry, relate to optimism and increased individual sense of control, whereas anxiety related worry, along with fear, work in an opposite manner by promoting withdrawal (Lerner & Keltner 2000; Lerner et al. 2003; Scherer et al. 2004, 518; Moons et al. 2010). Due to the significance of anger, worry about crime is sometimes positively functional by increasing an individual's sense of efficacy and control on a personal level, whereas for some, worry about crime relates to stronger individual anxiety and its dysfunctional and damaging responses (Jackson & Gray 2010; Lorenc et al. 2014). Beyond this, an under-researched area in this field is the fact that responses to crime, such as worry and anger, are most likely associating with punitive attitudes. Under specific circumstances, emotional responses to community violence are perhaps more strongly aimed against the criminal event and the offender (Hartnagel & Templeton 2012; Gerber & Jackson 2013).

2.5 Community response to a criminal event

The *integration perspective* in community responses to crime stems from the classic work of French sociologist Émile Durkheim ([1893] 1997), who argued that the criminal event visualizes moral boundaries in the community and increases the sense of social solidarity. Durkheim ([1895] 1982, 32, 75) further suggested that the absence of crime may result in the dissolution of social solidarity. This controversial claim that “crime is an integral part of all healthy societies” is, quite clearly, somewhat suspicious (Garland 1991; Liska & Warner 1991, 1442; Smith 2008) in addition to being empirically unproven (Cotterrell 1999, 75; Kivivuori 2008, 27, 51–52). Therefore, these functionalist connotations easily turn researchers away from this school of thought, although the Durkheimian influence remains, nonetheless, important (Garland 1990; 1991; Smith 2008, 334, 339–340, 342). After all, the notion that emotions help individuals constitute group boundaries after a heinous event is worthy of further empirical study (Conklin 1975, 60–61; Keltner & Haidt 1999, 512; Hawdon et al. 2010; Hartnagel & Templeton 2012).

The *disintegration perspective* is influenced by the sociology of the Chicago School, which, for its part, was influenced by the work of Durkheim (Lewis 1996, 100; Tierney 2010, 96). Nevertheless, this interpretation of individual response to a criminal event is somewhat opposite of the integration perspective (Lewis & Salem 1986, 114; Lewis 1996, 102–103). According to the disintegration perspective, the criminal event is expected to weaken the social fabric of community life and social solidarity because, instead of connectedness, the event increases fear of crime and distrust among locals (Conklin 1975; Innes 2004; Jackson 2004; Farrall et al. 2009). Moreover, even relatively close-knit communities are more likely divided by crime and criminal events. Discussions with neighbors may create rumors, which reinforce the distrust and further “destroys any vestige of community solidarity” (Conklin 1975, 56, 65).

2.5.1 The integration perspective on violent crime and social solidarity

Collective response to a criminal event is the key element of Durkheim’s assertion (Lewis & Salem 1986, 114; Garland 1990, 8–11; Lewis 1996, 102–103; Cotterrell 1999, 75). Furthermore, although there are different institutional conventions buffering individual

reactions, collective response to criminal event cannot be removed from its inner expressive moral and emotional drive for punishment (Turkel 1979; Garland 1990; Liska & Warner 1991; Smith 2008). Durkheim ([1893] 1997, 58) has famously argued that:

“Crime draws consciousnesses together, concentrating them. We have only to observe what happens – particularly in a small town – when scandal involving morality has taken place. People stop each other in the street, call upon one another, meet in their customary places to talk about what has happened. A common indignation is expressed... It is a public anger.”

A specific criminal event is, thus, a matter of offence to collectively held feelings and beliefs (Cotterrell 1999, 68). Emotional responses most typically consist of reactions to, and some kind of anger towards, the perpetrator(s), all of which are dependent on the degree of damage of an event. When considering rampage school shootings, perpetrators are, however, often deceased when surveys are conducted. Yet, collective sentiments to which the event has corresponded are emotionally written and therefore, perhaps by contrast to situations that involve suffering on the part of the perpetrator, collective responses to school shootings are focused more heavily and intensively on emotive reactions and re-establishing social relationships that have been disturbed (Durkheim [1893] 1997, 29, 37; Garland 1991, 122–123; Warr 2000, 482; Hawdon et al. 2010). Emotional expressions may serve as a positive influence on the interpersonal level and enable “social survival” and “boundary maintenance” functions for overcoming collective tragedy (Fischer & Manstead 2008, 456–457; Tierney 2010, 93–94; Hawdon et al. 2012b, 12). Through emotional expressions of punishment, the sense of social order is maintained (Garland 1990, 7–8), and collective response is expected to further reduce the impact of the event on the sense of social solidarity (Conklin 1975, 51; Warr 2000, 482; Ellsworth & Scherer 2003, 581; Smith 2008, 339).

Therefore, when a criminal event violates collectively held beliefs, the function of the outpouring of social solidarity, so to speak, is to ease the sense of uncertainty and anxiety by indicating that collective ties remain unchanged. A shift in the sense of togetherness accounts for emotive aspects of punishment and for the consequences of an event (Durkheim [1893] 1997, 63). This sense is manifested in an emotional response, a passionate non-rational reaction of defense, felt and expressed by individuals (Garland 1990, 8; Cotterrell 1999, 68; Smith 2008, 336), in order to search for conformity, while it

reflects the outrage of morality (Durkheim [1893] 1997, 38–39, 43, 60). The significance of the community response lies in its social origins and “onlookers” – community members – whose sentiments become violated and reassured (Garland 1990, 8–9). In other words, emotional process, also referred to as “collective declaration of punishment,” is the focus of the empirical explorations of the Durkheimian argument and not the administrative aspects of punishment (Garland 1991, 122–123, 127).

Although Durkheim ([1893] 1997, 24, 37, 47) acknowledged that social solidarity is “a wholly moral phenomenon” and that moral emotions are strongly rooted within all humans, he seemed to ignore the fact that social solidarity is not only a social fact that is exercised over the individuals (Keltner & Haidt 1999, 507–512; Sawyer 2002, 227–232). Walsh (2000) further argues that moral emotions and a sense of justice are the key elements that facilitate our conceptions of the social world. Although the individual sense of justice is different from evolutionary phenomena such as primary emotions (e.g. fear), the human sense of justice “is best conceptualized as a complex composite of evolved emotions and cognitions which evolved to serve purposes other than fairness and equity, but which have been coopted to serve that purpose” (Ibid. 846; Ellsworth & Scherer 2003, 581).

Moral outrage is further grounded in the evolution of moral psychology and nurtured by social interaction and cultural practices as noted by Durkheim’s contemporary Edvard Westermarck (1906). Perhaps it is the very innate human ability to feel moral emotions, instead of the functionality of crime, which nurtures social responses and the motivation to protect collectively held beliefs (Turkel 1979, 723–726, 729; Walsh 2000, 846–847; Kivivuori 2008, 76). Nevertheless, similar to that of Durkheim’s argument, the evolutionary approach also concludes that the primary “function” of sanctioning criminal events, as well as perpetrators, is to promote group cohesion and the restoration of predictability. Hence, morality binds and builds a sense of togetherness (Walsh 2000, 853; Haidt 2007, 1000; Fischer & Manstead 2008; Durrant & Ward 2012, 19).

At the group level, social-functional accounts of emotions may help a group of individuals who share common identities and experiences, become united in their goals as a social group (Keltner & Haidt 1999, 511). Indeed, there is empirical research that addresses the concept that a collective crisis results in more frequent social interaction and an increased sense of togetherness among community members. However, much of these

findings are discussed in the context of natural disasters (e.g. Fritz 1961; Barton 1969; Erikson 1976). Most generally, natural disasters appear to lack the emotional element of punishment and collective indignation, which is an important factor in man-made disasters.

Collins (2004) proposes that the enhanced group solidarity that occurs after a criminal event, such as the 9/11 terrorist attacks, takes place in temporal sequences (see also Ellsworth & Scherer 2003, 574). After initial, shocked reactions, standardized rituals of solidarity and its symbols may follow. A “high-solidarity plateau” lasting two to three months, is expected to further decline within six to nine months (Collins 2004, 57). Another recent study discovered that the Virginia Tech (US) school shootings were followed by an increased sense of group solidarity among students and that a shift in the sense of solidarity led to a decrease in this solidarity approximately six months after the event as the previous research had suggested (Hawdon et al. 2010).

Although Conklin (1975, 60–61) has questioned the Durkheimian assertion, he also posited that due to certain contextual conditions criminal events may sometimes result in an increased sense of togetherness. Along with the incomprehensibility of an event, the size of the community is among the most important factors (see also Liska & Warner 1991, 1460). Indeed, responses to crime in urban settings appear to keep individuals apart (Conklin 1975; Skogan & Maxfield 1981; Ferraro 1995; Heiskanen 2002; Smolej & Kivivuori 2006), and result in increase of individual avoidance behavior, which relates to the fact that individuals are more likely to perceive the deterioration of solidarity and an increased fear of crime (Ferraro 1995; Warr 2000; Smolej & Kivivuori 2006; Farrall et al. 2009; May et al. 2010). In addition, classical social psychological studies have shown that bystanders sometimes do not help the crime victims, even those in urgent need of assistance. These incidents have resulted in shared expressions, but they are, however, evoked by the condemnation of unresponsive witnesses, which is likely to decrease the sense of interpersonal trust (Conklin 1975, 136–138, 231–243).

Durkheim ([1893] 1997, 58–59) was clearly referring to specific social conditions such as rural and, perhaps, more cohesive neighborhoods with already relatively low crime rates. Rampage school shootings, for instance, have primarily occurred in rural schools (Kimmel & Mahler 2003, 1443, 1449; Larkin 2009, 1314–1315; Oksanen et al. 2010). Due to the extent of loss in an incident, local reactions are perhaps further concentrated by the “stimulus similarity” (Farrall et al. 2009, 116). When the crime takes place in one’s

own neighborhood it has an even stronger collective relevance as locals identify themselves more easily with the incident through their familiarity with the victims of tragedy (Hale 1996; Oksanen et al. 2010).

Taking the above propositions into consideration, school shooting incidents were previously perceived to occur only in the United States. However, the incidents in Jokela and Kauhajoki changed that notion in Finland. As the atmosphere in Finland changed, coverage of the events dominated national news in the weeks after by focusing on different aspects of events (Hawdon et al. 2012c, 10–13). The news stories were emotionally driven, which may have had a more pronounced effect on perceived neighborhood solidarity among Jokela and Kauhajoki residents (Innes 2004; Banks 2005; Hawdon et al. 2011, 1376). On the other hand, a cross-national comparison between national media framing of the shooting events in Virginia Tech, Jokela, and Kauhajoki suggests that the news reports from the two aforementioned incidents were more community-focused, which may have moderated the increasing effects on perceived social solidarity in those localities (Hawdon et al. 2012c). Jokela residents were also united by their shared negative experiences and expressed their acrimony towards media journalists because of their encounters with local youth and victims' families, whereas in Kauhajoki journalists were aware of the lessons of Jokela and grieving families, and were, for example, given space by Finnish journalists (Raittila et al. 2010, 39–43, 52).

Due to community significance, people may also feel more of a need to assign collective responsibility for events. It refers to a situation in which individuals, social groups and authority figures, who are not behaviorally involved in an event, are perhaps blamed for causing said event (Lickel et al. 2003, 195–196). The fact that many locals were either directly or indirectly affected by the event is also likely to intensify perceived collective responsibility (Ibid. 203; Nurmi et al. 2012, 314). Therefore, emotional responses and perceived collective responsibility are expected to associate with the interpretations of factors that have contributed either to the failure to prevent or, alternatively, the facilitation of the event (Lickel et al. 2003). For example, after the Jokela incident, public concerns were not only expressed about student mental health services, but also about issues such as the role of the sense of community and school bullying in Jokela (Investigation Commission of the Jokela School Shooting 2009, 49–50, 67, 107–110, 117). Whereas after the Kauhajoki incident, concerns were particularly expressed

about the availability of guns, youth mental health care and intergenerational relationships within schools in general (Investigation Commission of the Kauhajoki School Shooting 2010, 151–152).

The Jokela and Kauhajoki shooters also sought to maximize their publicity by uploading violent material on their personal social media sites before committing the attacks (Investigation Commission of the Jokela School Shooting 2009, 18–19; Larkin 2009, 1317; Sandberg et al. 2014, 280). The idea that that school shooters are perhaps motivated by violent video games has also been discussed. However, although exposure to violent video games relates to increase in aggressive behavior (Anderson 2004), public attention and news reports appear to take very simplistic views on the potential role of violent video game exposure in the context of school shooting incidents (Ferguson 2008; Lindgren 2010), while neglecting the complex interaction between individual factors and social contexts in the causes of school shootings (Verlinden et al. 2000; Lindberg et al. 2012). On the other hand, it also appears that violent video games may play a vital role when a person fantasizes about a mass killing and has initiated a planning stage (Levin & Madfis 2009, 1237–1239; Sandberg et al. 2014, 288).

Although public discussions stir up and arouse causal and blame attributions (Nurmi et al. 2012), such effects are also conditional and dependent on context specific factors as well as respondents' predispositions (Haidel-Markel & Joslyn 2001). However, different public discussions, especially concerning factors that are perceived to have contributed either to failing to prevent, or even facilitating the event may, for their part, have integrating effects among community members as they attempt to reconstitute individual and collective senses of safety and belonging in the aftermath of each local event.

Above all, different contextual and event-related factors may contribute to stronger emotional expressions of anger and anxiety, as well as the physical concentration of the community members, further help to bring "the interpenetration of minds even closer" (Durkheim [1893] 1997, 59). However, Collins (2004) has highlighted the fact that despite the occurrence of mutual sense of togetherness, collective displays are perhaps only performed by a minority of people. Therefore, Hawdon and Ryan (2011) further assessed what generates and sustains the sense of group solidarity in the aftermath of school shooting event. Their study discovered that the increase and maintenance of social solidarity related to participating event-specific public and parochial activities, such as a

convocation to honor the victims and a community gathering after the event (Ibid. 1371, 1374). Thus, an increase in social solidarity was partially supported by “the sharp rise in ritual intensity of social interaction” (Collins 2004, 55). Social interaction could therefore be expected to increase the sense of social solidarity or, in the least, enhance the symbolic meaning and positive thoughts of the social community across different contexts (Stets & Turner 2008, 41).

It should be also noted that some individuals are more seriously affected by mass violence at school and are therefore in need of receiving acute therapy after the event (Shultz et al. 2014). Consequently, recent studies indicate that individual differences, such as psychological well-being, associate with decreased expressions of social solidarity in the aftermath of mass violence (Hawdon & Ryan 2011, 1374–1375; Hawdon et al. 2012b). Perhaps those who are more seriously affected also display less interest toward community life and are not as affected by the collective ritual displays (Rottenberg 2005; Jackson & Stafford 2009; Bylsma et al. 2011). Hawdon and Ryan’s (2011) study further revealed that socio-demographic differences may also have a moderating effect on the crime-solidarity relationship as one’s female gender associated with the increased sense of social solidarity (Ibid. 1374). A similar effect was discovered by Franklin and Franklin (2009), whereas Oh and Kim’s (2009) study concluded that the crime-solidarity effect is stronger among older respondents.

Anger, anxiety and socio-moral antipathy are also socially disengaging emotions as they help individuals and social groups differentiate themselves from each other (Fischer & Manstead 2008). Thus, the idea of vast expressions of social solidarity is unlikely to be a generally valid claim (Cotterrell 1999, 79; Garland 1991, 126). However, Durkheim’s assertion remains rooted in concern with the tendency toward moral crisis and should be elaborated through empirical research in particular social locations (Turkel 1979, 727). This means that arguments concerning internal contradictions should also be addressed.

2.5.2 The disintegration perspective on violent crime and social solidarity

The disintegration perspective stems from negative individual responses to a criminal event and imagined victimization (Conklin 1975, 6–9; Lewis & Salem 1986, 114; Lewis 1996, 102–103). It argues that individual responses to a criminal event provoke fear (of

crime) until the first reactions and meanings attached to the event are understood more comprehensively; and further, instead of connectedness, responses to an event are perhaps more likely to associate with an individual sense of the failure of community solidarity (Conklin 1975, 20, 51, 56, 68; Skogan & Maxfield 1981, 259–262; Lewis & Salem 1996, 114; Lewis 1996, 104; Markowitz et al. 2001). Stronger perceptions of mutual trust and attachment to a place buffer the sense of insecurity and foster generalized conceptions that the moral is still predictable. Due to the collective relevance of an event, locals are perhaps suspicious that the behavior of residents does not meet the accepted moral standards (Lewis & Salem 1986, 99; Franklin & Franklin 2009). As Farrall and his associates (2009, 119) have posited:

“Crime speaks to and dramatizes concerns about social cohesion, relations and, change... crime gets into a symbolic tangle with issues of cohesion because the act of crime communicates hostility to the social order of a community and damages its moral fabric... crime may thus signal community to be suffering from deteriorating standards of behavior, diminishing power of informal social control, increasing diversification of norms and values, and decreasing levels of trust, reciprocity, and respect”.

Individual judgments are thus comprised of what has happened, and what may happen adding to negative views among the community (Conklin 1975). Based on recent reviews, perceptions of the local social environment are the most important “drivers” of fear of crime (Farrall et al. 2009; Lorenc et al. 2013a). Negative judgments may relate to social withdrawal when locals focus on protecting themselves, their families and homes (Conklin 1975, 56–57; Liska & Warner 1991).

Empirical evidence to support Durkheimian insights is somewhat scarce, although criminal events – and perhaps fear of crime – can stimulate community action and increase social solidarity (Conklin 1975; Warr 2000, 482; Silva & Villarreal 2006; Hawdon & Ryan 2009; Hawdon et al. 2010), also as a part of a reciprocating cycle (Markowitz et al. 2001, 311). However, there are, on the other hand, numerous studies maintaining the proposition that that concerns about crime are more likely to associate with negative perceptions of neighborhood solidarity (Conklin 1971; Hartnagel 1979; McGarrell et al. 1997; Adams & Serpe 2000; Gibson et al. 2002; Kanan & Pruitt 2002; Schafer et al. 2006; Doran & Burgess 2011, 36; Abdullah et al. 2013). An individual sense that the

neighborhood is in decline may further relate to a specific fear of crime. Moreover, perceived social solidarity appears to associate more strongly with responses to community violence than other types of crime (Conklin 1975, 7; Box et al. 1988, 342; Alper & Chappell 2012).

LaGrange and his associates (1992) have posited that the perceptions of a criminal event and solidarity are also related to individual assessments of the social and physical make-up of one's community (see also Skogan & Maxfield 1981; Lewis & Salem 1986). Perceived disorder and incivility are further defined as "low-level breaches of community standards that signal an erosion of conventionally accepted norms and values" (Ferraro 1995, 15). Decreased perceptions of social solidarity may also relate to the perceived willingness of local residents to maintain informal social control within their neighborhood. Frequent social interaction among neighbors is considered as one of the key elements, and assumed to be the most effective form, of informal social control. Neighborhoods with stronger social solidarity and informal social control may reduce crime and consequently buffer fear of crime (Bellair 1997; Sampson et al. 1997; Farrall et al. 2009, 93–94, 223).

Perceptions of social solidarity are often measured by more general attitudinal elements regarding one's neighborhood (e.g. "this is a friendly place to live", "people are trustworthy") (Farrall et al. 2009, 222–223; Hawdon et al. 2010), whereas perceptions of disorder are measured by asking the respondents to what extent they think that certain social groups (e.g. teenagers hanging out in the streets) and physical features (e.g. vandalism) are problematic within the community (Farrall et al. 2009, 222–223). Concrete neighborhood cues are perhaps more easily associating with judgments about crime and perceptions of local disorder and are among the most important cues (e.g. Pain 2000). Thus, perceived social solidarity appears to be a less important factor after being controlled for perceived neighborhood disorder (Ferraro 1995, 50; Kanan & Pruitt 2002; Farrall et al. 2009, 188–191; Abdullah et al. 2013). However, different perceptions regarding one's community may also interact. For example, McGarrell and his associates (1997) discovered that negative appraisals of social solidarity related to increased fear of crime in low- and medium-disorderly perceived neighborhoods, but not in the neighborhoods where disorder was perceived the highest (Ibid. 491). Another study concluded that the perceptions of solidarity operate through perceptions of informal social

control predicting concerns about crime (Gibson et al. 2002, 553–557), whereas a recent study concluded that perceptions of solidarity and disorder have a direct effect on fear of crime and were not related (Abdullah et al. 2013).

Existing research on fear of crime clearly challenges the assumption that there is “a rise to a single solidarity-enhancing effect on the community” even in the aftermath of a heinous event (Lewis & Salem 1986, 17; Garland 1991, 126; Farrall et al. 2009, 119–120). Indeed, scholars have long suggested that due to the emotive process of punishment, a perceived sense of togetherness is sometimes achieved only by promoting feelings of intolerance (Garland 1991). This stems from the fact that anger may also involve sanctioning innocent objects and community members, which evokes social group divisions (Conklin 1975, 54–55, 105). Stronger collective involvement in the event is perhaps most likely to intensify in-group-serving biases and intergroup conflicts (Lickel et al. 2003; Hutchison & Bleiker 2008). Although this may ease the increase in the sense of controllability and belonging, these dichotomies also enable individuals to condemn others more harshly (Conklin 1975, 33). For example, collective indignation is perhaps spread to innocent objects such as relatives and friends of the perpetrator (Durkheim ([1893] 1997, 47).

The social amplification of risk framework further posits that a wide range of psychological, social and cultural processes may intensify or attenuate interpretations of risk events. Amplification refers to communication processes and relates to the fact that particular information about events become more salient and have an effect on individual interpretations (Kasperson et al. 2003, 15). A randomized experiment from the United States concluded that school shooting incidents also exacerbate simplistic views and negative attitudes toward individuals who suffer from mental illnesses (McGinty et al. 2013). Criminologists have further addressed the issue that individual judgments of crime, in general, appear to exhibit more punitive attitudes about the youth population (Loader et al. 1998; Girling et al. 2001). School shooting incidents appear to perpetuate such judgments even more strongly. On some occasions the scene of the incident, such as Columbine High School, has become synonymous with perceived youth problems (Muschert 2007b; Frymer 2009; Muschert & Madfis 2012). In the worst cases the youth population as a whole “serves as an exemplar of alienation itself” (Frymer 2009, 1388). Additionally, suspicion is also cast on specific youth groups on the basis how they look

and what they wear. After the Columbine shootings, youth with trench coats were associated with evil deeds (Lickel et al. 2003, 202; Larkin 2009, 1311–1312). Similar results have been found in Finland. For example, qualitative studies have observed polarization between the youth and adult populations, especially within the Jokela community. In addition, as people were afraid of a reoccurrence of school shooting incidents, young individuals wearing black leather coats were perceived as suspicious and sometimes even reported to the police (Nurmi et al. 2012, 312; Nurmi & Oksanen 2013, 871).

Thus, it is important to consider that perceived neighborhood solidarity stems from a range of community related attitudes, which are distinct but closely related (e.g. Ferraro 1995, 18; Farrall et al. 2009, 118). Further, individual conceptions of a criminal event and community solidarity may also stem from other individual and locale-specific factors. Beliefs about community characteristics are perhaps affected by the amount of time people have lived in their neighborhood. For example, those who have lived in a neighborhood for longer may have established stronger social bonds and networks, and are less suspicious towards others (Lewis & Salem 1986, 80–81; Ferraro 1995, 51; Keene et al. 2013). People have a tendency to feel less uncertainty in their own familiar neighborhood because they know more people due to long-term residence (Pain 2000; Lorenc et al. 2013a). After examining other moderating effects, Franklin and Franklin (2009) discovered that women were more likely than men to associate decreased perceptions of community solidarity with increased fear of crime. However, there is also empirical evidence that points in the opposite direction (Schafer et al. 2006). On the whole, some individuals may simply hold more negative views about community solidarity, and a criminal event reaffirms already negative perceptions (Jackson 2004; Farrall et al. 2009, 98–101; Doran & Burgess 2011, 37). Therefore, perceived community solidarity before the incident is likely to predict community effects after a notable event within that community (Hawdon et al. 2010; Hawdon et al. 2011).

2.5.3 School shootings and the popular consciousness of crime

In contemporary societies, criminal events have become, in the very least, something in the back of many people's minds due to emotive media reports of crime (Farrall et al.

2009, 104–105, 149). Although the relationship between fear of crime and media is not always straightforward (Smolej 2011), singular events are most likely to draw stronger attention to event consequences among the public (Warr 2000, 467; Ellsworth & Scherer 2003, 576). As a consequence, school shooting incidents are among the most salient topics that have been merged with cultural frames of fear and anxiety (Altheide 2009; Lindgren 2010; Muschert & Madfis 2012). This may partially relate to the fact that these incidents are complexly determined and that it is somewhat difficult to “predict lethal violence among youth” (Verlinden et al. 2000, 47–50; Shulz et al. 2014).

An increase in public insecurity is perhaps further explained by a so-called “probability neglect” thesis, which means that individuals have a tendency to focus on the severity of outcomes and ignore the small probability that an event could occur again. Stronger emotional involvement increases the risk that individual responses may result in overestimations and biases (Slovic 1987; Sunstein 2003; Jackson 2011, 531). Moreover, anxieties about criminal events also express concerns about related social issues. Conklin (1975, 17) has further posited that individuals are actually more likely to react to their perceptions of social issues instead of issues as such. Therefore, “if crime is not regarded a serious problem, there will be very little discussion upon the topic” (Ibid. 17). Indeed, it is well established that crime has taken on a vivid meaning in contemporary cultural life (Garland 2001; Hope & Sparks 2000). Although contemporary western societies are relatively safe compared to the past, a cultural climate of uncertainty may affect the framing of school shooting incidents and they become particularly expressed within fear and anxiety (Furedi 2006; Mythen & Walklate 2006).

That is why there is a need to widen the scope as public insecurity and individual judgments of criminal events are also affected by different macro-level influences. Along with concerns about neighborhood characteristics and perceptions of solidarity, lay expressions of crime risks are situated in individual judgments of attitudes and concerns about societal cohesion (Hollway & Jefferson 1997; Jackson 2004). For example, Wacquant (2008) argues that generalized public insecurity is related to late modernity and a “string of interrelated social changes,” such as deterioration in the labor market and the erosion of traditional values (Garland & Sparks 2000, 189, 198–199; Hope & Sparks 2000, 5; Farrall et al. 2009, 33–34). Accordingly, it is proposed that the observed increase in crime concerns in Finland in the early 2000s could have been affected by both

economic uncertainty and increased crime news reporting (Smolej & Kivivuori 2008; see Taylor & Jamieson 1998). Similar results were gathered from the US during the recent economic recession (Britto 2013).

Therefore, public anxieties about criminal events should be assessed both theoretically (Hollway & Jefferson 1998; Pain 2000; Hope & Sparks 2007; Gadd & Jefferson 2007, 54–69; Koskela 2009), and empirically (Hirtenlehner 2008; Gerber et al. 2010; Hirtenlehner & Farrall 2013), in relation to broader social anxieties and as a proxy for “generalized insecurity.” In the aftermath of a localized criminal event, neighborhood concerns are perhaps drawn from an abstract sense of uncertainty (Hirtenlehner 2008, 132–134, 150). Community integration and disintegration perspectives may thus neglect the concept that responses to an event are easily projected onto other nameable macro-level fears. Notwithstanding, specific localized event and contextual conditions may also play a vital role and are perhaps required before a broader and abstract sense of uncertainty becomes expressed through generalized fear of crime (Gerber et al. 2010; Hirtenlehner & Farrall 2013).

Responses to school shooting incidents may thus relate to different social cues and attitudes toward social groups and broader social characteristics, which are connected and anchored to already popular discussions about current societal issues (Farrall et al. 2009, 89–90). After the incidents in Jokela and Kauhajokki, locals thought that the negative effects of the Internet, the deterioration of traditional communality and cuts in health care services were the primary causes (Lindström et al. 2010). The Investigation Commission addressed similar issues, especially after the incident in Jokela, whereas recommendations after the incident in Kauhajokki related to concerns about student mental health care and firearms legislation (Investigation Commission of the Jokela School Shooting 2009; Investigation Commission of the Kauhajokki School Shooting 2010). However, issues may also become polemic among the wider public. For example, media coverage has favored placing a disproportionate emphasis of mental health illness as a cause of school shooting incidents, while ignoring the easy access to firearms as a one significant contributor (McGinty et al. 2013; Shulz et al. 2014).

2.6 Individual variation in fear of crime

In considering the community approach, sociological and socio-cultural arguments easily become “overly sociological” if they neglect deeper contextual and individual assessments (Jackson et al. 2006). Although responses to criminal events are perhaps affected, for example, by local narratives, different social groups also have common interpersonal stances that characterize different belief systems between groups (Scherer et al. 2004, 503; Scherer 2005, 705–706). A sociological perspective may also overlook the fact that not all individuals are exposed to violent crime and that incident-related consequences may vary within a community (Walklate & Mythen 2008).

2.6.1 Gender and age

Women typically express stronger concerns about crime compared to men. This consistency appears to remain in crime surveys (Ferraro 1995, 85–88; Hale 1996, 96–100; Heiskanen 2002, 198; Smolej & Kivivuori 2006, 217, 219; Farrall et al. 2009; Russo et al. 2013) and qualitative studies (Pain 2000; Lorenc et al. 2013a). Surveys that have been conducted in the context of rampage school shootings are no exception (Addington 2003; Fox et al. 2009; Kaminski et al. 2010; Elsass et al. 2014). Therefore it could be concluded that women are more fearful than men when threat relates to violent crime and implies the potential for physical injury (Fetchenhauer & Buunk 2005). However, gender difference may no longer apply when assessing concerns about property crime (Reid & Konrad 2004; Schafer et al. 2006, 290), although Fetchenhauer and Buunk’s (2005) study found that women were more fearful of any criminal event when compared to men.

The evolutionary approach suggests that women’s ability to avoid risk situations has probably been favored in order to protect their offspring (Fetchenhauer & Buunk 2005; Kivivuori 2008, 62–63). The relationship between gender and fear of crime is further elaborated through the psychology of risk perspective (Warr 1987; Jackson 2009). Jackson (2011, 518) has further elaborated a unified model according to which the judgments of likelihood of individual victimization have an effect on fear of crime, while the relationship is further moderated by the individual sense of control and event consequences. Thus, when an individual thinks that there is little control over the event

and the event is perceived to have a serious personal impact, a lower level of perceived likelihood is needed to result in stronger worry (Warr & Stafford 1983; Warr 1987; Killias & Clerici 2000). Individual sensitivity to risk may further comprise both personal and relative risk for women, who are also more likely to think that their gender and age group are at risk compared to men (Jackson 2009, 380; 2011, 515–518).

Apart from perceiving risks differently, women and men perhaps perceive different kinds of risks (Gustafson 1998). Although violence committed by partners and ex-partners affects some women, as well as some men, women and especially those of a younger age group, appear to be more at risk of experiencing intimate partner violence by their spouses and ex-partners (Heiskanen 2002, 155, 159; Heiskanen & Ruuskanen 2010, 34). The anticipation of consequences also relates to the ability to defend. Due to apparent physical vulnerability, women – and the elderly – are less able to resist personal attack (Skogan & Maxfield 1981, 69–70). This notion appears to play a consistent role in the “gendered” genesis of fear of crime (Killias & Clerici 2000). Due to the stronger perceived risk of personal harm, female gender is also a significant predictor of avoidance behavior with regard to different fear of crime measures (Ferraro 1995, 112; Smolej & Kivivuori 2008, 217).

Considering the above, it is further suggested that women are “ecologically more vulnerable.” This means that women are influenced by environmental cues more strongly than men, who have a tendency to perceive social situations through their own personal lens (Smith et al. 2001). Lorenc and his associates’ (2013a, 6) recent review therefore concluded that “women tend to express greater fear, and the focus of their fear is virtually always men.” Above all, threat of sexual violence is among key factors and “shadows” women’s responses to different types of crime (Ferraro 1995, 85–100; Schafer et al. 2006; Farrall et al. 2009, 84–85; Hilinski 2009; Heiskanen & Ruuskanen 2010, 39–40, 43). It is even suggested that fear of sexual violence is actually more grounded in women’s perceptions of violent threat than in prior victimization experiences (Pryor & Hughes 2013), although the shadow thesis does not apply to all women (Hilinski et al. 2011, 121). Women’s concerns about crime may also stem from the fact that they are taught to be more fearful (Hilinski et al. 2011, 120; Sutton et al. 2011) and to use emotive assessments (Lupton & Tulloch 1999).

The so-called risk-fear paradox relates to the fact that younger men are most at risk of criminal victimization and community violence (Heiskanen 2002, 135, 142; Kivivuori 2008, 57; Farrall et al. 2009, 83; Aaltonen 2013, 235). However, younger men appear to be the least likely to consider harmful consequences and they are – on average – more risk averse and likely to underestimate the probability of crime related risks (Hale 1996; Loewenstein et al. 2001; Schafer et al. 2006; Heiskanen & Ruuskanen 2010). Compared with women, men are also less likely to express emotional concerns (Sharp & Lipsky 2002, 1001). This may relate to social expectations of masculinity and that men tend to downplay their concerns, especially in self-reported surveys (Smith & Torstensson 1997; Sutton & Farrall 2005). This is further examined in a more recent study conducted by Sutton and his associates (2011), which concluded that when male respondents were being asked to respond honestly, they did in fact express more worry about crime.

In considering age, early scholars were also somewhat troubled because older respondents were discovered to be more concerned about crime than other age-groups (Ferraro 1995, 67–68; Hale 1996, 100; Heiskanen 2002, 184). This is of particular interest because the theory of emotions argues that aging is associated with flattened affect and suggests that older people might actually experience less intense emotions (Scherer et al. 2004, 503). Furthermore, police-reported, age-crime victimization clearly indicates that older people are less at risk of victimization compared with younger age groups (Heiskanen 2002, 135; Kivivuori 2008, 57; Aaltonen 2013, 8). Based on empirical evidence, a general assumption can be made that older respondents are more worried about crime when abstract single-item indicators are used (Ferraro 1995, 69–70, 122–123), however, the effect no longer applies when focusing on the fear of interpersonal violence (Piispa et al. 2006, 129–130). For example, younger age clearly associates with women's stronger fear of rape and nonsexual crime (Ferraro 1995, 92, 96–97; Hilinski 2009), and young women are also the group that most frequently worries about crime (Farrall et al. 2009, 180). Older age may, however, relate to fear of crime among men (Schafer et al. 2006), yet the relationship is not constant across all studies (Franklin & Franklin 2009). There is also weak evidence that perhaps younger men are more frequently concerned about crime when compared to older men (Farrall et al. 2009, 180).

2.6.2 Education and income

Individual responses to crime are also affected by one's level of education and monthly income – often referred to as correlates of individuals' socio-economic status (SES) – although these factors are less consistently related to fear of crime than gender and age (Ferraro 1995; Farrall et al. 2009). It is suggested that economic uncertainty may relate to an individual sense of self-efficacy and increased expressions of insecurity (Skogan & Maxfield 1981, 73; Scherer 2004, 720; Scherer et al. 2005, 503). It is also proposed that individuals who are financially better off may have easier access to different social resources for engaging support if needed (Agnew 1985). Consequently, Smolej and Kivivuori's (2006) "vicarious fear" (of crime) hypothesis argues that those individuals who are less educated, unemployed, or have lower levels of income are more likely to express increased fear of crime (see also Hale 1996, 103; Kristjansson 2007; Britto 2013; Vieno et al. 2013). However, this is not a consistent finding across all studies (Farrall et al. 2009, 181). In a recent longitudinal study, Russo and her associates (2013) found that the unemployment rate increased fear of crime, but individual level of education was not, however, related to individual crime concerns.

Schafer and his associates (2006) found that income and educational level are relatively weakly related to crime concerns among women, whereas other studies have found that lower levels of income also relate to women's increased fear of crime (Ferraro 1995; Franklin & Franklin 2009). SES related indicators appear to relate more consistently to male responses to crime. A lower level of education is established to associate with decreased perceived safety and worry about victimization among men (Schafer et al. 2006). Considering the role of income levels among men, however, the findings are somewhat divergent. One study concluded that lower levels of income predicted both decreased perceived safety and worry about victimization among male respondents (Schafer et al. 2006), whereas another study discovered that increased levels of income predicted increased worry of victimization for the male sample (Franklin & Franklin 2009). However, police-reported crime victimization experiences are strongly concentrated in lower socioeconomic groups, especially among younger adults. An SES-fear of crime linkage, for example, is probably less consistent than one might expect due to survey nonresponse and divergent population coverage (Aaltonen 2013, 43, 56).

2.6.3 Crime related experiences

Prior victimization

Victimization experiences are expected to associate with individual emotional stress, which may create a previously unfamiliar sense of vulnerability and perceptions of a just world become challenged (Janoff-Bulman & Frieze 1983; Perloff 1983). Therefore it is somewhat surprising that the relationship between prior crime experiences and fear of crime has been somewhat inconclusive (Skogan 1987; Hale 1996; Kury & Ferdinand 1998; Tseloni & Zarafonitou 2008; Farrall et al. 2009, 83). It has been further argued that prior victimization experiences increase perceived threat from personal crime (Stafford & Galle 1984), although studies have indicated that prior experiences also have a relatively strongly increased effect on both concrete (e.g. personal threat) and abstract (e.g. crime as a social problem) fear of crime (Ferraro 1995, 50–51; Kanan & Pruitt 2002; Tseloni & Zarafonitou 2008; Russo & Roccato 2010; Russo et al. 2013).

It should be acknowledged that some crime surveys only measure victimization experiences for the past twelve months (Farrall et al. 2009, 84). Most of all, victims of more serious types of crime that involve personal harm are more likely to express increased individual worry and crime related distress compared to victims of less serious and non-personal types of crimes. Consequently, individuals who have experienced multiple victimizations are likely to experience stronger fear of crime (Kury & Ferdinand 1998; Farrall et al. 2009, 186–191). There is a small proportion of the population who experience a large proportion of *all* crime (Farrell 1992; Aaltonen 2013). Scholars have also noted that when focusing specifically on frequency of worry about crime, it also appears that there is a small group of individuals who experience crime related distress on a regular basis, which stems from actual personal and vicarious crime experiences (Farrall et al. 2009, 186).

However, research has also ignored the human capacity to maintain normal functioning across time – referred to as resilience – despite adverse life events (Dutton & Greene 2010; Walklate 2011). Although Russo and Roccato's (2010) longitudinal study concluded that crime experiences jeopardize individual perceptions of a just world and associate with feelings of vulnerability (see Janoff-Bulman & Frieze 1983), authors also reported that different individual and social factors enabled the maintenance of normal

functioning across time and the neutralization of emotional stress. Beyond this assertion, in a prospective study that examines the effects of students' exposure to violence after the school shootings in Finland, resilience was found to be the most likely outcome, which was enhanced by social support from one's significant others (Haravuori et al. 2012, 9, 38, 50).

Vicarious experiences

It is noteworthy that criminal events are in many ways heterogeneous in their individual relevance (Gabriel & Greve 2003). Responses to criminal events also stem from vicarious experiences (Ferraro 1995, 50–51; Kanan & Pruitt 2002; Jackson 2006, 257; Tseloni & Zarafonitou 2008; Farrall et al. 2009, 191; Russo et al. 2013). A stronger image of an event, and worry about crime, are likely to associate with the loss of a friend or an acquaintance (Hale 1996, 105–106). Similarly, in the aftermath of a school shooting incident, injury or the loss of a person they were close with is likely to associate with stronger emotional distress (Hughes et al. 2011). It is further proposed that indirect victimization might be a more difficult task to cope with than direct victimization, because indirect experience may not involve the use of effective coping strategies as strongly as direct victimization experiences (Russo & Roccato 2010, 970). This claim has also generated some empirical evidence in fear of crime research (Farrall et al. 2009, 189–191).

Although household composition obviously refers to family structure, studies should also pay attention to individual worry for family members and partners, referred to as vicarious or altruistic fear of crime (Warr & Ellison 2000; Heiskanen 2002; Snedker 2006; Heber 2009; Doran & Burgess 2011, 71). Inevitably, mass violence at schools is among the issues that most likely encompass parental concerns about the safety of their children (Warr 2000, 455–456; Jackson 2004, 951–952). Parental distress may also have a negative effect on emotional well-being and coping among children and adolescents in the aftermath of community violence (Aisenberg & Ell 2005; Snedker 2006; Aisenberg & Herrenkohl 2008). School shootings have occurred in small neighborhoods, thus locals are likely to know victims of crime (Oksanen et al. 2010). Due to the site of mass violence, parents of school-aged children are also more likely to know victims (Vuori et al. 2011).

Heber (2009) posits that altruistic fear is a response to situations that are unknown and difficult to control. Once again, worry for one's significant other is perhaps expressed

differently between men and women. Women's more generalized fear of crime may characterize maternal caretaker role expectations (Gustafson 1998; Snedker 2006; Kivivuori 2008, 62). Women appear to express more concerns about the safety of children, whereas men are found to especially worry about their spouses (Warr & Ellison 2000; Heiskanen 2002, 194–195; Snedker 2006; May et al. 2010).

2.6.4 The role of psychological wellbeing

Given that school shooting incidents are emotionally disturbing events, a person's mental health is perhaps an important factor. It is proposed that individuals in high-risk groups are actually those who suffer from poor mental health, such as depressed mood due to stressful life environments (Sharp & Lipsky 2002; Lorenc et al. 2014). Stafford and her associates' (2007) study found that individuals who reported increased worry about crime were nearly two times as likely to express depressed mood as those individuals who reported less crime concerns. Depressed mood also predicted decreased social interaction (Ibid. 2079–2080). In a prospective study Jackson and Stafford (2009) further examined a feedback model of fear of crime and depressed mood. They proposed that fear of crime is directly affected when concrete experiences of anxiety already affect persons who are already under stress, which may further restrict individual behavior and that those people are less likely to leave home which, in turn, further decreases individual perceptions of community solidarity. This process is likely to heighten individual crime concerns, and further reduce physical activity. The research team concluded that perceptions of criminal events may harm psychological well-being and facilitate heightened – sometimes dysfunctional – worry (Ibid. 832, 843; see also Lorenc et al. 2014). Self-reported depressed mood is also likely to associate with self-reported anxiety (Moffitt et al. 2007). Consequently, anxiety increases individual worry about different types of crime compared with non-anxious individuals (Chadee et al. 2009, 179).

Emotional stress is sometimes related to prior victimization experiences (Bonanno et al. 2007; Lorenc et al. 2013a), which further reinforces negative appraisals of violent events and perhaps moderates long-term emotional distress (Davis & Friedman 1985; Ross 1993; Russo et al. 2013). Cumulative exposure to different types of victimization over a life-course constitutes a substantial source of depression (Turner et al. 2006). By focusing on

co-occurrence between prior crime experiences and emotional distress, it is perhaps possible to further examine negative subgroup coping in the aftermath of shocking events (Winkel 1998, 482). In fact, victims of serious violent crimes are the most likely to report serious mental health consequences and social vulnerability (Turner et al. 2006; Bonanno et al. 2007; Lorenc et al. 2013a). Social vulnerability relates to different individual and social resources used to deal with consequences of criminal events (Skogan & Maxfield 1981, 73). This may be an important aspect as depressed mood is perhaps influenced by a sense of community belonging (Lorenc et al. 2013b, 8), and the positive function of social solidarity could even prevent mental health problems from occurring after the school shooting incidents (Hawdon et al. 2012b).

3 AIMS OF THE STUDY

The aim of this study is to examine community and individual approaches in responses to mass violence after the school shooting incidents in Jokela (November 2007) and Kauhajoki (September 2008).

The research questions are as follows:

- 1) To what extent are integration and disintegration perspectives empirically supported in responses to mass violence?
- 2) What are the most significant socio-demographic factors associating with responses to mass violence?
- 3) What is the significance of crime related experiences in responses to mass violence?
- 4) What is the significance of psychological wellbeing, specifically depressed mood, in responses to mass violence?

4 MATERIALS AND METHODS

4.1 Study designs

Correlational and cross-sectional study designs are used in the five consecutive research articles. The main focus in Articles I and II is to assess the relationship between perceptions of social solidarity and crime related concerns within, and between, the Jokela and Kauhajoki communities. Individual factors (i.e. socio-demographic factors, crime related experiences and depressed mood) are also used as independent variables in order to receive empirical evidence for all the four research questions (RQ's 1–4). The difference between the two correlational study designs lies in the fact that worry about two types of community violence are dependent variables in Article I, whereas perceived social solidarity is the dependent variable in Article II.

Article III focuses solely on RQ 1 by examining the integration perspective in a more detailed way. Prior theory suggests that responses to crime should latently increase social solidarity, which is based on the assumption of the sets of linear equations. A hypothesized model is adopted and modified from Liska and Warner (1991). Article IV, for its part, focuses solely on individual perspective (RQ's 2–4) by examining the significance of socio-demographic factors, crime related experiences and depressed mood in responses to mass violence.

Article V examines responses to mass violence in the Jokela community by bridging the community and individual approaches (RQ's 1–4). Despite the lack of pre-event measures and repeated measures design, the intention of Article V is to establish a “baseline” in a situation in which the Finnish society had witnessed the first school shooting incident. Local responses to mass violence are “revisited” as the shooting incident in Kauhajoki had taken place before the second survey sample was collected. It also takes an approach toward a so-called “generalized insecurity” thesis.

4.2 Context of the study

The Finnish communities of Jokela and Kauhajoki are relatively small, both in size and population. However, Jokela is actually one of the three population centers in the larger town of Tuusula. It has a population of 5 300 in 2007, and is located in the northern region of the Tuusula, about 50 kilometers from Finland's capital city, Helsinki. Kauhajoki is situated in the Ostrobothnia region of Western Finland, approximately 330 kilometers from Helsinki. The town of Kauhajoki is larger than Jokela, both in terms of geography and population, with a population of approximately 15 000 inhabitants (Investigation Commission of the Jokela School Shooting 2009, 15; Investigation Commission of the Kauhajoki School Shooting 2010, 18).

The school shooting incident in Jokela occurred at a local, high school with 489 students and 43 staff members. On November 7, 2007, an 18-year old male student from the local high-school spent his morning by updating his online profiles and uploading his media package about the ensuing shooting incident. After turning his computer off at 11.28 a.m. he proceeded to cycle to his school where he started shooting his peers in the school hallway at 11.42 a.m. (see Investigation Commission of the Jokela School Shooting 2009, 18–19; Hawdon et al. 2012, 9). By the time that the perpetrator committed suicide, he had killed six fellow students and two members of the school staff in- and outside the school building (Investigation Commission of the Jokela School Shooting 2009, 48).

The shooting incident in Kauhajoki took place on September 23, 2008, at the local University of Applied Sciences, which had 1400 students and 90 staff members. After making the final updates on his Finnish social media site, a 22-year-old male student entered his educational establishment at approximately 10.30 A.M. He then proceeded to the classroom where his peers were having an exam. At that time, there were 12 students and a faculty member still in the classroom when the shooting incident took place, only three students survived. After the police officials entered the building, the perpetrator committed suicide (Investigation Commission of the Kauhajoki School Shooting 2010, 61; Hawdon et al. 2012, 9).

4.3 Data collection

The study utilizes four independent cross-sectional postal survey samples. They were collected over a period of two years from the Finnish communities of Jokela and Kauhajoki. The sampling frames (N=700) for the surveys were the Finnish-speaking adult population aged between 18 to 74 years. The study participants were selected from the Population Register Database.

A self-administered paper-and-pencil questionnaire – including a covering letter explaining the request to participate and assuring anonymity – was mailed with a postage-paid return envelope. The covering letter also included an introduction to the research topic, the institution being represented, the relevance of the inquiry, and an explanation that participation is voluntary (Cargan 2007, 100; Groves et al. 2009). Non-respondents received a follow-up reminder letter, as it is suggested that a reminder would result in higher response rates. Incentives were not used (Baruch & Holtom 2008, 1145; Shih & Fan 2008).

The descriptions of each data set are presented in Table 1, which also indicates the samples being used in each of the five articles. The first postal survey in Jokela was conducted approximately six months after the shootings on November 2007. The second Jokela survey sample was conducted 18 months after the shooting incident. This means that the second survey was conducted approximately eight months after the shooting incident in Kauhajoki.

Table 1. *Descriptions of data sets.*

Data	Time of data collection		N	Response rate	Article
Jokela I	6 months post-event survey	May–June 2008	330	47 %	I–III, V
Kauhajoki I	6 months post-event survey	March–April 2009	319	46 %	I–III
Jokela II	18 months post-event survey	May–June 2009	278	40 %	V
Kauhajoki II	18 months post-event survey	March–April 2010	339	48 %	-
Combined data-set	n/a	May 2008–April 2010	1266	n/a	IV

Note: The combined data-set consists of all the four sample surveys

Surveys in Kauhajoki were conducted using identical techniques. The first survey was fielded approximately six months after the shooting incident on September 23, and the second survey was fielded approximately 18 months from the time of the incident.

The socio-demographic profiles of the data sets are shown in Table 2. Given that Jokela is a population center in the larger municipality of Tuusula, a comparison of the Jokela sample to its population is limited because official estimates are not directly applicable to the Jokela community.

Table 2. *Data sets by age and gender.*

	Jokela I	Kauhajoki I	Jokela II	Kauhajoki II
	% (n)	% (n)	% (n)	% (n)
Age				
18–34	15.6 (50)	18.7 (58)	11.2 (31)	20.8 (67)
35–54	42.4 (136)	39.0 (121)	41.7 (116)	36.3 (117)
55–74	42.1 (135)	42.3 (131)	44.6 (124)	42.9 (138)
Mean (SD)	50.21 (13.59)	48.71 (15.08)	51.83 (12.64)	49.19 (15.34)
Gender				
Female	48.3 (157)	55.3 (172)	46.4 (124)	55.1 (179)
Male	51.7 (168)	44.7 (139)	53.6 (143)	44.9 (146)

Note: Age groups are composed on the basis of the National Crime Victimization Surveys. The two youngest age groups (18–24 and 25–34 year-olds) are combined into a single group.

Based on 2008 estimates (Statistics Finland, 2013) of the Tuusula population aged between 18–74 years, 45.6 percent were between 31 and 50 years-old. In the Jokela survey samples, however, 40.6 % (Jokela I) and 39.5 % (Jokela II) of the respondents were 31–50 year-olds. In considering the gender distribution of the Jokela samples – 51.7 % and 53.6 % respectively were male – figures suggest that both Jokela samples are somewhat representative in this dimension. However, male respondents are slightly overrepresented in the second sample.

When comparing the Kauhajoki sample characteristics to official estimates, it should be noted that official population parameters also include the population from the broader municipality and not only from the town of Kauhajoki. According to official figures (Statistics Finland 2013), 43.5 % of the of the 18–74-year-old population are between the ages of 31 and 50. In the Kauhajoki samples – 35.2 % and 29.1 %, respectively – are in the age range of 31 to 50. In considering gender distribution, 51.8 percent of the larger

Kauhajoki municipality area population was male. However, we can see that 44.7 percent of the respondents in the first survey were male and 44.9 percent were male in the post-event survey taken 18 months after the incident.

To sum up, the structures of the data yield some biases with respect to age and gender when compared to official estimates, particularly in the case of the Kauhajoki samples. It can be also concluded that some of the figures are not within the expected margin of error for the samples, although they are relatively close. Most importantly, given that official figures are for the broader municipality areas of Jokela and Kauhajoki and not directly applicable to the study localities at hand, it was decided not to weight the data (see also Hawdon et al. 2012a; 2012b).

4.4 Study variables

This section introduces the study variables. The list of variables and their usage across the five articles is summarized in Table 3 at the end of this section.

Social solidarity and neighborhood interaction

This study includes a measure for perceptions of *social solidarity* (Articles I–III, V), which is a combination of six Likert-type questions with labeled endpoints ranging from 1 “strongly disagree” to 5 “strongly agree.” The items are: (1) I am proud to be a member of my community; (2) I feel I am part of the community; (3) People in my neighborhood share the same values; (4) My neighborhood is a good place to live; (5) I trust my neighbors; and, (6) People work together to get things done for this community. The index originates and is derived from Bachrach and Zautra’s (1985) sense of community scale. The construct reliabilities (Cronbach’s α) for Jokela and Kauhajoki data-sets were .85 or above. It is identical in terms of its items and alpha reliability with studies used in research into school shootings in the US context (Hawdon et al. 2010), and also somewhat identically related to criminological studies in which social solidarity is referred to as community cohesion (Jackson 2004; Farrall et al. 2009) or social integration (Skogan & Maxfield 1981).

Study measures *interactions with neighbors* by using a 4-point scale item by asking the respondents “how often they associate with their neighbors” (1=‘hardly ever’, 4=‘daily’).

Fear of crime

To measure fear of crime, a specific type of event is preferred, along with an emotional component. Worry is suggested as it is nuanced towards the common emotional responses and contemplations of thoughts about uncertain events, and to “describe rumination about future events and immediate response to current situation” (Farrall et al. 2009).

The main focus is on community related violence. *Worry about school shootings* (Articles I–V) is measured by asking the respondents “how worried were they that a school shooting incident would reoccur.” Labeled endpoints ranged from 1 (“not worried at all”) to 5 (“being extremely worried”). *Worry about street violence* (Article I) is measured by asking the respondents “how worried they were about becoming a victim of street violence within their neighborhood.” Again, labeled endpoints ranged from 1 (“not worried at all”) to 5 (“being extremely worried”).

The latent variable of *worry about interpersonal violence* is measured by asking the respondents how worried they were about becoming a victim of the following types of violence: (a) street violence, (b) burglary, (c) violence at work, (d) intimate partner violence, and (e) sexual harassment. Labeled endpoints ranging between 1 “not worried at all” to 5 “being extremely worried.” Similar items are used in Finnish NCVSs (Sirén et al. 2010). Construct reliability (Cronbach’s α) for worry about interpersonal violence was ($\alpha = .73$) for Jokela, and ($\alpha = .82$) for the Kauhajoki data.

In addition, two variables are drawn from a common battery of questions. First, *worry about terrorism* is measured by asking the respondents “to what extent do they think that terrorism poses a threat to security” (1= “strongly disagree”; 5= “strongly agree”). Based on prior theory, perceived threat from collective targeted violence such as terrorism may increase an overall sense of solidarity. Second, *punitive orientation toward crime* is measured by asking respondents to “what extent does the soft sentencing of criminal offenders pose a threat to security.” Labeled endpoints ranged from 1 (“strongly disagree”) to 5 (“strongly agree”). Based on prior theory, the relationship between individual crime concerns and punitive attitudes may stem from the fact that individuals are likely to express their anger about crime, which is also one of the key elements of the integration perspective.

Sociodemographic factors

Along with respondents' *gender* (1=female, 2=male) and *marital status* (1=cohabit/married), study measures respondents' *age*, either as a continuous or categorical control variable. Age groups (1= 18–34 years; 2=35–54 years; 3=55–74 years) are composed on the basis of the Finnish NCVS (Sirén et al. 2010). Given that there are only a few respondents in the youngest age group (i.e. 18–24-year-olds), the individuals aged 18–24 years and 25–34 years are combined into a single group.

The study measures persons' *educational status* with a dichotomous variable, which is created in order to refer to the level of education an individual has completed (1=basic/compulsory level; 2=second or third level). The categorical variable of *household income* is created on the basis of a person's monthly household income. Quartiles were then used as cut-points. The dichotomous variable of *housing tenure* is created on the following basis (1= "at most five years"; 2= "six years or more").

Crime and event related experiences

Household composition clearly refers to socio-demographic factors. However, in the present study, it is specifically measured in order to tap into parental concerns about the safety of their children (Heber 2009). A categorical variable is created in order to assess whether the respondent has school-aged children (7–17 year-olds) within the household (1=no; 2=yes).

Prior victimization experience is measured by asking the respondents whether they had experienced – in the past five years – a situation in which: (a) "someone they knew" or (b) "a stranger" had attacked them or (c) "someone had threatened them in a way that led them being seriously frightened." The answers are then combined to a sum variable. The criterion used was at least one positive response as regards to prior victimization after which the respondent is categorized in the group having experienced a personal event of violence (1=no; 2=yes). The measure for event related vicarious experiences is created on the basis of whether the respondent was a friend with, or *knew*, a victim of the shooting incident (1=no; 2=yes).

Depressed mood and anxiety

In this study, psychological well-being refers to Raitasalo's (2007) Finnish modification (RBDI) of the short form of the Beck Depression Inventory (BDI), which measures respondents' *self-reported depressed mood*. The categorical variable is created on the basis of RBDI guidelines by differentiating individuals who do not express depressed mood from the individuals who express at least mild depressed mood (1= "no depressed mood"; 2= "at least mild depressed mood").

Original BDI from 1961 was "derived from clinical observations about the attitudes and symptoms displayed frequently by depressed psychiatric patients, of which are consolidated systemically into 21 symptoms and attitudes" (Beck 1988, 79). The 13-item short form was created in the 1970's. Different versions and language versions are available, which have modified BDI to fit their cultural nuances (Beck 1988, 80; Sharp & Lipsky 2002, 1003). RBDI is slightly different from the original short form of BDI (Raitasalo 2007, 23, 73). In addition, some versions measure individual differences in depression as a personality trait, whereas others measure the intensity of affective feeling states (i.e. present mood) of depressive symptomatology. RBDI measures present mood ("How a person is feeling at present") (Raitasalo 2007).

Subjective anxiety, which is not included in the depression inventory score (Raitasalo 2007, 71), is measured on a five-point scale by asking the respondents "if they have feelings of anxiety or distress." The indicator is converted into a categorical variable by using the inventory guidelines to separate the "non-anxious", from those individuals who expressed "at least mild anxiety."

Perceived risk from social change and crime

For exploratory purposes and to examine a so-called generalized insecurity proposition, two latent constructs are further drawn from the common question battery (see Hirtenlehner 2008). Respondents were asked "to what extent they think that different societal issues pose a threat to security." A measure for *attitudes toward social change* is expected to capture any sense of insecurity, which is affected by the concerns about domestic societal issues. The items are: a) unease related to unemployment, b) increased desertion of voting responsibilities c) eroding moral values and d) the commercialization of societal life. Labeled endpoints ranged from 1 (strongly disagree) to 5 (strongly agree).

Internal consistency reliabilities were .65 and .67 for the 6 and 18 months post-event Jokela samples, respectively. Measures for *attitudes toward crime and punishment* is measured by asking the respondents “to what extent they think that” following items: a) soft sentencing, b) violence in entertainment, c) terrorism, d) internationalization, and e) imported crime present a threat to security (Cronbach’s $\alpha = .70$ and .65, respectively).

Table 3. *List of variables including number of items, scales and the use of each variable across five consecutive research articles.*

Variables	Items	Scale	Article
Dependent variables			
Perceived social solidarity ^a	6	5-point Likert scale (Sum 6–30)	II–III [†]
Worry school shootings ^b	1	5-point Likert scale	I, IV–V
Worry street crime	1	5-point Likert scale	I
Punitive attitudes	1	5-point Likert scale	III [†]
Neighborhood interaction ^c	1	4-point Likert scale	III [†]
Independent variables			
<i>Socio-demographic variables</i>			
Age	1	Scale / Ordinal	I–V
Gender	1	Nominal	I–V
Educational status	1	Nominal	I, V
Marital status	1	Nominal	II
Household income	1	Ordinal (quartiles)	IV
Housing tenure	1	Nominal	I, V
<i>Crime and event related experiences</i>			
School-aged within household	1	Nominal	I, IV–V
Knew a victim	1	Nominal	I, IV–V
Prior victimization	3	Nominal	I–II, IV
<i>Psychological wellbeing</i>			
Depressed mood (RBDI) ^d	13	Nominal	I–II, IV
Subjective anxiety	1	Nominal	V
<i>Perceived risk from social change and crime</i>			
Attitudes toward social change	4	5-point Likert scale (Sum 4–20)	V
Attitudes toward crime and punishment	5	5-point Likert scale (Sum 5–25)	V

Note: ^a Independent variable in articles I and V; ^b Independent variable in article II; ^c Independent variable in article II; ^d The score from RBDI was converted to a dichotomous variable using inventory guidelines.

[†] Article III is based on linear equation modelling in which dependent variables are referred to as endogenous variables, whereas independent variables are referred to as exogenous variables

4.5 Data analysis

Statistical analyses include descriptive statistics, multivariate analysis through general linear and generalized linear modeling procedures as well as path analysis. Linear regression is based on ordinary least squares (OLS) estimation (Articles I–II, V), which is a straightforward method of minimizing the sum of squared residuals. OLS estimation assumes the normal distribution of the dependent variable. In addition, unbiased estimators also require the absence of multicollinearity among independent variables as well as the normally distributed errors (i.e. normality of residuals) (Tabachnick & Fidell 2007).

Ordered logistic regression (Articles IV–V) makes it possible to specify an ordinal variable as a response, while taking into account the ordered nature of the dependent variable. In contrast to OLS estimation, ordered regression includes sensitivity analysis by assuming that the coefficients of the independent variable are parallel (i.e. proportional odds assumption) for each category of the response variable. When proportional odds assumption holds, the effect of the independent variable has an identical effect at each cumulative split of the dependent variable (Tabachnick & Fidell 2007; Agresti 2012).

Path analysis is based on sets of linear equations (Article III), which is tested within a structural equation modeling (SEM) framework. Path coefficients are assessed for statistical significance at a 5 % level. The following indices are used to assess the model fit: chi-square test (χ^2), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA) (Byrne 2010). Regression coefficients are based on full information maximum likelihood (FIML) estimates, which incorporate a mean structure of the data. FIML estimates are different from maximum likelihood (ML) estimates, but do not substantially differ from the complete data ML estimation. The difference is that missing values are not imputed when incorporating the FIML estimation method (Arbuckle 2010). Normal theory estimates should be preferred when the sample size is less than 400. In addition, normal theory estimates appear to perform relatively well with ordered categorical variables, and even with moderate kurtosis and skewness (Muthen & Kaplan 1985; Enders & Bandalos 2001; Byrne 2010). The data analyses were conducted using SPSS 19 and AMOS 19 software.

4.6 Ethical considerations

Ethical considerations should not only cover the publication of the results, but also include the choice of the research topic and research process. The present study is conducted by following the guidelines of the Finnish Advisory Board on Research Integrity for Social Sciences (Tutkimuseettinen neuvottelukunta, TENK 2009). The covering letter included an introduction to the research topic, the institution being represented, and a description of the relevance of the inquiry. It also included an assurance of anonymity and confidentiality (Cargan 2007, 100; National Advisory Board on Research Ethics 2009, 10–11). As the target population was the adult population aged between 18 and 74 years, informed consent is affirmed when an individual decides to participate in the study. It is also acknowledged that some of the theoretical postulations presented in this study may require that sample surveys are conducted relatively soon after the incident. Despite the fact that this study focuses on the adult population, the research design, however, should not infringe on the already affected local community.

5 EMPIRICAL RESULTS

5.1 Responses to mass violence and street crime after school shootings (Article I)

The relationship between perceived social solidarity and two types of community violence within and between the Jokela and Kauhajoki localities was examined in Article I. The control variables included socio-demographic factors, crime related experiences, and self-reported depressed mood.

In considering responses to mass violence amongst Jokela respondents (Table 4), it was found that the negative perceptions of social solidarity related to increased worry about the recurrence of school shootings at a 0.1 % level. After including all of the independent variables into a linear equation, only the effect of self-reported depressed mood – along with perceptions of solidarity – remained a statistically significant predictor of worry about mass violence. However, in order to take a closer look at results for the Kauhajoki sample, it was learned that perceived social solidarity did not associate with worry about mass violence. Instead, statistically significant factors consisted of socio-demographic indicators (i.e. female gender and lower educational level) as well as incident related experiences (i.e. knowing a victim). Respondents with a basic education were more concerned that the incident could reoccur in the future compared to those with a II or III level of education at a 0.1 % level. Female gender also remained a statistically significant predictor within the Kauhajoki data at a 5 % level, compared to that of Jokela ($\beta=.110$, $p=.057$). Respondents who were friends, or at least acquaintances, of the victim also expressed more concerns about mass violence.

However, responses to street crime amongst Jokela and Kauhajoki localities were relatively similar. Perceived community deterioration related to increased risk of victimization from street violence at a 1 % level. It is noteworthy that the regression coefficients were almost identical. Female gender increased the perceived risk from street violence at a .01 % level. Lower level of education also reached statistical significance. However, prior victimization experiences related to increased worry about crime in the Jokela sample, but the effect did not occur in the Kauhajoki sample.

Table 4. *Linear regression for responses to school shootings and street crime.*

	Jokela		Kauhajoki	
Dependent variable ^a	School shootings	Street crime	School shootings	Street crime
	Standardized coefficients		Standardized coefficients	
Socio-demographic factors				
Female gender	.110	.214 ^{***}	.141 [*]	.190 ^{***}
Basic education	.058	.145 [*]	.120 ^{***}	.120 [*]
Age (cont.)	.009	.161 [*]	.042	.054
Housing tenure	.002	-.012	-.044	-.018
Crime related experiences				
Knew a victim	.087	.055	.164 ^{**}	.037
Victimization	.098	.184 ^{**}	.017	.055
Psychological wellbeing				
Depressed mood	.124 [*]	.042	.097	.107
Sociological factors				
Social solidarity	-.178 ^{***}	-.177 ^{**}	-.011	-.178 ^{**}
Model F	4.034 ^{***}	6.327 ^{***}	3.956 ^{***}	4.576 ^{***}
R ² adj.	.100	.149	.103	.117

Base *n* (=330) for the Jokela and (=319) for the Kauhajoki six months post-event measures.

p*<.05; *p*<.01; ****p*<.001

Note: Modified for visual ease. Please see the original article for more detailed results.

^a Dependent variables were measured by using the five-point Likert-type scale (1= “not worried at all” to 5= “extremely worried”)

5.2 Perceived social solidarity after mass violence (Article II)

Perceived social solidarity in the aftermath of the school shootings was the focus of the next study. Article II specifically examined the relationship between perceived solidarity and crime related fears. Drawn from results for the Jokela sample (Table 5), it is discovered that after including all independent variables into linear equation, the effects of crime related factors remained statistically significant predictors. In other words, when a person perceives a stronger risk of mass violence and threat of personal victimization, it associates with negative perceptions of community solidarity. However, increased risk perceptions from collective violence (i.e. terrorism) related positively to an increased

sense of community solidarity at a 1 % level. Neighborhood activity clearly increased positive thoughts about the neighborhood cohesion. Self-reported depressed mood, on the other hand, indicated a more pessimistic view about community solidarity.

Table 5. *Linear regression for perceptions of social solidarity.*

	Jokela	Kauhajoki
Dependent variables	Standardized coefficients	
Crime related factors		
Worry about school shootings	-.15*	ns
Worry about terrorism	.18**	ns
Worry about personal victimization	-.25***	-.14*
Prior victimization experience	.11*	ns
Interaction within the community		
Meeting with neighbors	.23***	.30***
Socio-demographic factors		
Gender (male)	ns	ns
Age (cont.)	ns	-.13*
Marital status (married)	.15*	ns
Household composition		
School-aged (7–17-year-olds) wthn household	ns	ns
Psychological wellbeing		
Depressed mood	-.24***	-.19***
Model F	8.29***	8.37***
R ² adj.	.21	.22

Base *n* (=330) for the Jokela and (=319) for the Kauhajoki six months post-event surveys.

p*<.05; *p*<.01; ****p*<.001

Note: Modified for visual ease. Please see the original article for more detailed results.

In considering the model for the Kauhajoki sample, some notable differences were discovered when compared to the Jokela sample. Neither the concerns about the school-shootings nor terrorism related to perceptions of neighborhood solidarity. Yet, there were also clear similarities between the two localities. For example, perceived threat from personal victimization also had a decreasing effect on perceived solidarity in the Kauhajoki sample. Furthermore, interaction with neighbors also related to positive perceptions of neighborhood solidarity, whereas self-reported depressed mood was a clear indicator of more pessimistic views about one’s community, and yields very similar results between the two localities.

5.3 Integration perspective for responses to mass violence (Article III)

The next step was to assess more closely whether the responses to mass violence increase perceived social solidarity within the communities affected by the school shootings. Integration hypothesis proposes a mediated model, which is not best captured by a standard linear regression procedure. After assessing the proposed path model, it appeared to fit the data moderately well. However, two additional parameters were also specified and estimated separately. Nested model comparisons were assessed using the traditional chi-square difference ($\Delta\chi^2$) approach. This decision is justified as responses to horrific criminal events may also challenge perceived community solidarity.

The chi-square test was statistically significant for modified models, indicating that the models did not have sufficient absolute fit. The relative fit indices, however, indicated that the models had a moderate overall fit (Jokela = $\chi^2_{(29)}=65.40$, $p<.001$; CFI=.95; RMSEA=.062) and (Kauhajoki = $\chi^2_{(29)}= 91.14$, $p<.001$; CFI=.93; RMSEA=.083). Further, the linear equation models were invariant between the two community samples and therefore the results are based on separate unconstrained models (Figure 1).

First, it was discovered that the integration perspective yielded empirical evidence in the Jokela sample as the social response to a school shootings incident does appear to bring people latently together. In other words, worry about school shootings and other types of crimes related positively to a punitive orientation toward crime, which, in turn, positively related to social interactions among neighbors. Finally, increased interactions were clearly related to positive perceptions of community solidarity. The modified model was a multi-group invariant as it regarded age, but not between genders. In other words, estimates of effect sizes were stronger among women compared to men.

In considering the Kauhajoki sample, however, the integration perspective did not receive empirical evidence. As can be seen in Figure 1, not all of the hypothesized paths were statistically significant (regression coefficients in parentheses). While worries about school shootings were positively related to a punitive orientation toward crime, this orientation was not correlated with increased interactions with neighbors. Thus, the predicted linear equation chain is not complete.

Based on the results, important similarities between the two models should also be addressed. Increased worry about street violence has a direct effect on negative

perceptions of social solidarity, whereas perceived threat from collective violence (i.e. terrorism) has an increasing effect on perceived community solidarity.

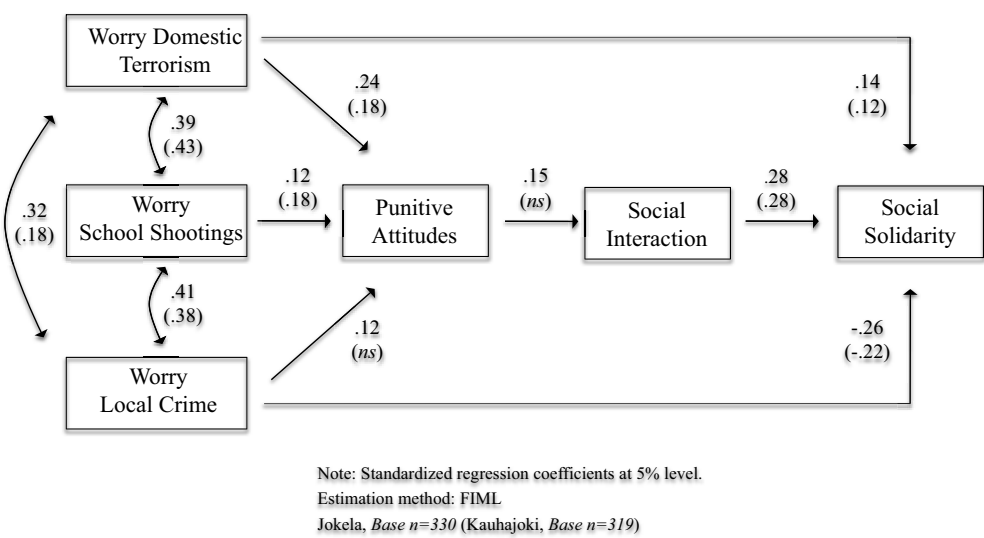


Figure 1. A tentative test of a functional model for responses to mass violence

5.4 Significant individual factors in responses to mass violence (Article IV)

In order to assess significant individual factors in responses to mass violence, Article IV utilized all four cross-sectional designs collected from the Jokela and Kauhajoki localities. This decision enabled, for example, the assessment of gender-age interaction. Results are based on cumulative odds ratios (OR) along with 95% confidence intervals from the full information data (n=1002). No violations of parallel odds assumption were detected. Therefore, when the explanatory variable increases by one unit, while all other independent variables are held constant, the proportional odds are multiplied by exp(B) for every category of the response variable. For example, young women (aged 18–34) are approximately 3.5 times more likely to express their concerns about the recurrence of mass violence at schools compared to men from the same age group (Table 6).

Table 6. Ordered regression for worry about the recurrence of school shootings.

	<i>Exp (B)</i>	<i>95 % C.I</i>
Gender and age (years) group		
Female 18–34	3.48***	2.00–6.02
Female 35–54	2.26**	1.36–3.75
Female 55–74	2.84***	1.69–4.78
Male 18–34	1	1
Male 35–54	1.77*	1.08–2.91
Male 55–74	ns	ns
Household income (€/month)		
Q1 (lowest)	1.48*	1.04–2.09
Q2	ns	ns
Q3	ns	ns
Q4 (highest)	1	1
Household composition		
School-aged within household	1.35*	1.02–1.77
No school-aged within household	1	1
Prior victimization		
Yes	ns	-
No	1	-
Knows a school shooting victim		
Yes	1.99***	1.52–2.62
No	1	1
Depressive mood		
At least slight depressiveness	2.17***	1.56–3.01
No depressiveness	1	1
Data		
Kauhajoki II	ns	ns
Jokela II	1.55**	1.13–2.13
Kauhajoki I	2.52***	1.83–3.49
Jokela I	1	1
Nagelkerke Pseudo R^2	0.132	

* $p < .05$; ** $p < .01$; *** $p < .001$

Dependent variable = worry about recurrence of school shootings (1='not worried at all' – 5='extremely worried').

The next block included a variable for household income in the regression equation. Respondents with the lowest level of income were roughly 1.5 times ($\exp(B) = 1.48$) more concerned about the recurrence of school shootings compared to individuals with the highest level of income. Looking at household composition, respondents who have school-aged children within the household expressed more concerns about mass violence ($\exp(B) = 1.35$) compared to the reference group at a 5 % level; whereas knowing a victim of the

shooting incident was even more clearly a statistically significant predictor by increasing the worry about mass violence ($\exp(B) = 1.99$) at a 0.1 % level. Finally, depressed mood remained an important predictor after controlling for other indicators. Respondents who expressed at least mild depressed mood were over twice ($\exp(B) = 2.2$) as likely to express increased worry about mass violence.

Results also suggested that individual concerns fluctuate, especially between the 6-month post-event samples collected from the Jokela and Kauhajoki localities. However, as there is no statistical difference between the first survey (Jokela I), and the last survey (Kauhajoki II), it could be concluded that perhaps individual concerns were affected by the shootings in the Kauhajoki incident, yet concerns appeared, nonetheless, to decline as time went on.

Finally, subgroup analyses (not shown here) indicated that men's worry about mass violence was moderated by monthly household income levels, while this effect was not detected among women. However, women's worry about mass violence was moderated by having school-aged children within the household, but not among men. In addition, the frequency of "being extremely worried" about mass violence at schools was highest among the group in which a person had experienced victimization in the past five years and expressed at least mild depressiveness.

5.5 Jokela – Revisiting local responses to mass violence (Article V)

Prior articles indicate that the shooting incident in Jokela had stronger community relevance among local residents. Therefore the final article, Article V, focused on responses to mass violence exclusively among Jokela respondents. Multivariate procedures included both ordinal and linear regression approaches. Ordinal regression held the proportional odds assumption and the two approaches yielded a very similar result and thus the results from OLS regression are shown here.

First, in considering results for six-month post-event measures (Table 7) it was discovered that individual factors were relatively weak predictors after controlling for sociological constructs. Only one indicator (i.e. knowing a victim) reached statistical significance at a 5 % level. It was further confirmed that a decreased sense of neighborhood solidarity related to increased concerns about the recurrence of a shooting

incident. In addition, judgments about mass violence were also affected by macro-level influences as the perceived risk from social change (e.g. eroding moral values), and perceived risk from crime (e.g. terrorism) associated with worry about the recurrence of school shootings.

Table 7. *Linear regression for worry about the recurrence of school shootings.*

	6 months post-event measures	18 months post-event measures
Variable	B (95% C.I.)	B (95% C.I.)
Female	ns	ns
Age	ns	ns
Lower education	ns	ns
Housing tenure (≥ 6 yrs)	ns	ns
School-aged within household	ns	0.391** (.100; .683)
Knew a victim	0.282* (.002; .562)	0.407** (.122; .693)
Subjective anxiety	ns	ns
Perceptions of social solidarity	-0.304*** (-.479; -.128)	ns
Attitudes toward social change	0.217* (.015; .420)	0.307** (.093; .522)
Attitudes toward crime	0.498*** (.304; .693)	0.416** (.200; .632)
Model F	9.380***	8.708***
Adj. R ²	.214	.213

Base n (=330) for the Jokela 6 months post-event survey and (=278) for the 18 months post-event survey.

* $p < .05$; ** $p < .01$; *** $p < .001$

Note: Modified for visual ease. Please see the original article for more detailed results.

After “revisiting” the local responses, it was found that individuals who perceived increased risks from social change and crime were also more concerned about the recurrence of school shootings. However, perceived neighborhood solidarity no longer related to worry about the recurrence of school shootings. Instead, variation in worry about mass violence was more clearly related to individual differences, and moreover, different emotional proximity to the incident, as with persons who have school-aged children within household or knew a victim of event, were also more likely to express increased concerns about mass violence.

5.6 Summary of the results

In considering the community approach, results indicate that school shooting incidents may provoke collective indignation and result in increased perceptions of social solidarity within the community. However, this only applied in the case of the Jokela community and not in the case of the Kauhajoki community. Moreover, results showed that the Kauhajoki incident did not affect collective sentiments in the same way as it did in Jokela. For example, the incident in Jokela also further challenged the sense of belonging and mutual trust among local residents as the worry about the recurrence of a school shooting incident associated with decreased perceptions of community solidarity. This was not, however, detected within the Kauhajoki community.

In considering the individual approach, specific socio-demographic factors, most notably gender and age, were clearly associating with responses to mass violence. Women aged 18–34 were among the most concerned individuals that mass violence at schools would reoccur, whereas men aged 18–34 were the least concerned age and gender group, also when compared to older male respondents. Worry about mass violence was also stronger among the respondents at the lowest level of household income compared to financially better-off respondents.

Furthermore, individual responses to mass violence were affected by event related experiences. Having school-aged children living within the household and especially knowing a victim of the event were significant indicators of increased worry about the recurrence of school shootings.

Finally, although specific individual factors, as discussed above, were clearly related to the increased worry about mass violence, they were not significant indicators across the articles. However, the role of psychological well-being – depressed mood – was found to be a somewhat robust indicator. In other words, those individuals who expressed at least mild depressed mood were the most likely to express their concerns about worry about the recurrence of school shootings as well as neighborhood deterioration.

6 DISCUSSION

The aim of the study was to examine community and individual approaches in responses to mass violence after the school shooting incidents in Jokela and Kauhajoki. In this section, the key findings from the five research articles are discussed.

6.1 Integration and disintegration perspectives in responses to mass violence

The school shooting incidents in Jokela (2007) and Kauhajoki (2008) were disturbing and attention-focusing events, which had a huge impact on Finnish society. However, they were also specific events having an effect on a single community at a time, in which locals were then forced to reflect on the fact that their neighborhood had faced a notorious criminal event. Many locals were also affected by the incidents either directly or vicariously. Based on this study, this may create a situation in which the community response – an increased sense of social solidarity – is expressed in order to reduce the impact of the event on collective sentiments. In this respect, results are similar to those of research findings from the United States, which have pointed out that a school shooting incident may increase the sense of belonging within a community (Hawdon et al. 2010; Hawdon & Ryan 2011; see also Collins 2004). Yet, the present study indicates that while an increase in social solidarity appears to apply in the case of the Jokela community, it does not, however, apply in the case of the Kauhajoki community.

Empirical results also support the disintegration perspective, again, particularly in the Jokela case, by suggesting that even this relatively close-knit community is still perhaps divided by the heinous and attention-focusing criminal event. Thus, although mass violence may bring people together, an abhorrent event is also likely to, as addressed by prior research, associate with perceived neighborhood deterioration and a decreased sense of belonging, which reinforce mistrust among locals (Conklin 1975; Farrall et al. 2009).

In addition, the results obtained from the Jokela community further indicate that integrative and disintegrative effects may occur simultaneously as, perhaps, parallel emotive processes. This interpretation is also supported by prior theory and research (e.g. Garland 1991, 126; Fischer & Manstead 2008, 456–457; Nurmi 2012). Perhaps even more

importantly, results indicate that community responses to school shooting incidents between the two Finnish localities were somewhat different. That is not to say that people in Kauhajoki were not affected by the tragedy. However, empirical findings indicated that there was a lack of community response as proposed by either integration or disintegration perspectives. This further suggests that a criminal event does not necessarily impact the wider community and collective sentiments. Therefore, perhaps specific contextual and event-specific factors are needed in order for community response to occur (Cotterrell 1999, 69)

In considering the differences between the two localities, the shooting incident in Jokela was the first of its kind in Finland. The fact that the event took place at a local high-school most probably influenced the reasons that the event had stronger community relevance. This means that although the shootings in Jokela and Kauhajoki were similar and attention-focusing events, the different responses to the incidents between the two localities were perhaps partially related to the different residential histories of the victims and perpetrators. For example, the fact that the perpetrator in Kauhajoki had moved to town approximately a year before the event may have enabled the community members to maintain a “perceptual distance” from the event when compared to the Jokela community. This further suggests a stronger “stimulus similarity” amongst Jokela respondents and, as a result, a stronger community response occurs when compared to the Kauhajoki community (Farrall et al. 2009, 116). These interpretations are further supported by narrative studies, which have indicated that Jokela residents were more likely to construe the whole community as a victim, whereas Kauhajoki residents perceived their parish as merely a site where the incident took place (Nurmi 2012; Nurmi et al. 2012).

Perhaps the size of a community is another significant contextual factor. The population center of Jokela forms a smaller community than Kauhajoki, both geographically and population-wise (see Conklin 1975; Liska & Warner 1991). Beyond this, the Jokela community was also united by their negative experiences with reporters. As a result, the collective sentiments in Jokela were disturbed and violated twice, over a short period of time. The community response to a criminal event cannot be removed from its inner expressive moral and emotional drive for punishment and thus shared expressions are primarily evoked through the condemnation of a shooting event (Durkheim ([1893] 1997, 58). Perhaps community response is further moderated by acrimony toward the

media (Raittila et al. 2010, 39). Event related news reports from Jokela were also more community-grief-focused when compared to news reports about the Kauhajoki incident (Hawdon et al. 2012c). Notwithstanding, the results indicated that solidarity-enhanced effects may not affect those who are more severely exposed to the events (see Hawdon & Ryan 2011, 1374–1375).

Taking the above arguments into consideration, there were, it should be noted, also important similarities between the two localities. Although public discussion did not associate school shooting incidents in Finland with terrorism, it is noteworthy that community concerns about the recurrence of school shooting incidents associate, at least to some extent, with perceived risk from terrorism (Altheide 2009; Malkki 2014). Further, it appears that for some individuals, school shooting incidents represent an external threat committed by a “criminal other.” Interestingly, a stronger perceived risk from terrorism also associates with a stronger sense of neighborhood solidarity. On the other hand, worry about victimization from street violence also related to increased perceptions of community deterioration between the two localities in a very similar manner. Further, this finding is consistent with several prior studies (e.g. Ferraro 1995; Hale 1996; Jackson 2004; Alper & Chappell 2012; Abdullah et al. 2013; Lorenc et al. 2013a).

After examining responses to mass violence among Jokela respondents more closely, the findings indicate that individual and community concerns were also affected by different macro-level influences, such as perceived risk from social change (e.g. eroding moral values) and crime (e.g. terrorism). This suggests that responses to heinous events need to be examined in relation to broader social anxieties and as a proxy for generalized insecurity (Hollway & Jefferson 1997; Hirtenlehner 2008). Perhaps even more important, although specific emotions such as anger may play a vital role in recovery from the collective tragedy (e.g. Walsh 2000; Hartnagel & Templeton 2012), the community response to mass violence suggests that social reactions may result in negative consequences within the community as they might open the door for social errors. For example, anger and moral disgust toward the criminal event may involve sanctioning social groups and other community members as Durkheim also suggested ([1893] 1997, 47; see also Conklin 1975, 54–55, 105; Garland 1991). According to qualitative studies, one of the negative consequences after the shootings in Jokela was the strengthened group division between local youth and the adult population (Nurmi 2012; Nurmi et al. 2012;

Nurmi & Oksanen 2013). International research has further addressed the notion that school shooting incidents have also increased concerns about youth mental health as well as heightened negative attitudes toward persons with serious mental illness (Henry 2009; McGinty et al. 2013).

Taking everything into consideration, a spectacular and attention-focusing criminal event may pull community members together, but it may also, similar to that of common and perhaps more chronic crime, tear a community and its members apart. Therefore, cultural and political conventions play an important intermediary role. Based on the discussions above, authorities have different approaches to consider in order: (a) to support both resilient and vulnerable individuals, and (b) to protect individuals and communities from possible indignity and guilt in the aftermath of any collective criminal event (Garland 1990; Walsh 2000; Lerner et al. 2003; Hutchison & Bleiker 2008; Smith 2008). Moral emotions are deeply embedded and moral outrage thus nurtures the motivation to protect collectively held beliefs and to promote group cohesion. However, expressions of anger may result in socially engaging as well as disengaging effects.

6.2 Significant socio-demographic factors – female gender and age-gender interaction

There is vast empirical evidence that individual factors contribute to variation in crime related concerns and responses to mass violence are no exception. Socio-demographic factors, most notably gender and age, are among the most significant indicators. Similar to the findings of prior research, the present study discovered that women express stronger worry about mass violence and risk of personal victimization from street violence compared to men (e.g. Fox et al. 2009; Kaminski et al. 2010; Lorenc et al. 2013a). After controlling for interacting effects, it is even more apparent that women from the youngest age group are the most concerned about mass violence, whereas men from the same group (aged 18–35) are the least concerned, also when compared to older male respondents. Results clearly support prior research and theory by suggesting that women, particularly from younger age groups, are more concerned than men when threat implies violent crime (Fetchenhauer & Buunk 2005; Jackson 2009a).

In considering these findings, the notion of sensitivity to risk is perhaps relevant here (Warr 1987; Jackson 2011). It has been found that perceived risk from violent crime is moderated by an individual sense of control and crime consequences. Women are also more likely to think that their gender and age-group is at risk from violent crime compared to men (Jackson 2009a), which may increase the use of emotive assessments among women (Lupton & Tulloch 1999). Emotive assessments, for their part, evoke stronger images of crime consequences and, perhaps women's stronger worry with regards to violent crime, relates to more negative judgments toward state authorities and their ability to respond to violence as a societal issue (May et al. 2010, 170). However, this assumption would obviously need closer examinations.

The present study has also indicated that due to the threat of mass violence at schools, women are perhaps more concerned about the safety of their school-aged children compared to men. Prior research suggests that gender differences may stem from different role expectations between women and men (Snedker 2006; Fetchenhauer & Buunk 2006; Kivivuori 2008, 62–63). Obviously, there is no reason to conclude that men do not worry for their children, but perhaps this effect does not occur because men from the youngest age groups are less likely to express crime related concerns, at least, in survey settings (Sutton & Farrall 2005; Sutton et al. 2011). It should also be noted that the present study did not explicitly refer to worry for others and therefore closer examinations are required.

Responses to mass violence are also related to the correlates of individuals' socio-economic status (SES), such as household income. Further, similar to the findings of prior research, correlates of individuals' socio-economic status appear to be less significant predictors for worry about mass violence compared to those of gender and age (Hale 1996; Farrall et al. 2009). However, the findings further extend Smolej and Kivivuori's (2006) "vicarious fear" of crime thesis in responses to mass violence by suggesting that economic uncertainty moderates increased individual expressions of insecurity (see also Vieno et al. 2013). Yet, it should be addressed that vicarious worry about crime typically refers to worry for loved ones (Warr & Ellison 2000; Snedker 2006). Results also indicate that the worry about crime and income-level association is perhaps more relevant among male respondents, which would, again, need closer examinations (see Schafer et al. 2006). Perhaps more importantly, the examination of socio-demographic differences in responses

to mass violence suggests that gender is among the most salient factors as it may actually moderate the significant main effects of other socio-demographic indicators.

6.3 Crime related experiences – the role of emotional proximity to the event

Although the school shooting incidents in Jokela and Kauhajoki were geographically restricted to relatively small communities, individuals are not equally affected by the unexpected and shocking events within their neighborhood. Worry about mass violence was stronger among respondents who either knew a victim of the incident or had school-aged children living within the household. Therefore, although rampage school shootings have arguably become a background consideration for many, appraisals of the events appear to evoke stronger concerns when a person is more closely involved with the incident.

The notion of “image of risk” means that individual differences in responses to risks are affected by emotional proximity to the event (Rundmo 2002). Due to personal relevance and closer proximity, an individual appraisal of mass violence at schools – a particular type of violent crime – results in different resonance of an event and its consequences between individuals. Jackson’s (2006, 257) worry about crime model further proposes that individual judgments are often comprised of both thinking and feeling, and “a feedback may occur where emotion directs and strengthens cognition regarding the nature of crime and its specific threat.”

Results from the Jokela community also suggest that due to the emotional proximity to the event, the shooting incident in Kauhajoki may have evoked concerns about mass violence, especially among individuals who had children within the household and/or knew a victim of the prior shooting incident. Quite obviously, the recurrence of rampage school shootings is perhaps not the only reason for these concerns as there were also numerous police reported school threats in Finland as well as nine school shooting incidents globally in 2008 (Böckler et al. 2013). Notwithstanding these issues, the results suggest that individual crime concerns are sensitive to contextual attributes, which may change over time.

The significance of personal and vicarious crime related experiences also casts some doubts on overly sociological analysis, which may neglect individual differences in responses to mass violence. For example, the narrative research approach has suggested

that the school shooting incidents in Jokela and Kauhajoki were followed by a collective trauma process (Nurmi 2012; Nurmi et al. 2012). First of all, there is no reason to disagree with the proposition that mass violence at a local school would not have engendered deep moral concern by leaving wounds within the community. However, the starting point for the collective trauma argument appears to be an assumption that communities are vulnerable (see Garland 2008, 26–27). The concept of trauma further implies that individuals express trauma-induced symptoms and are perhaps in need of counselling after the incident, which stems from severe exposure to the event (Hughes et al. 2011; Haravuori et al. 2012). Nonetheless, most of the community population perhaps suffers from at least milder exposure to incident. Beyond this, it has been encouraging that adolescents and adults appear to have a relatively strong ability to maintain healthy levels of functioning despite possible the “traumatizing” effects of mass violence (Dutton & Grene 2010; Hughes et al. 2011; Walklate 2011; Haravuori et al. 2012).

Taking the above arguments into consideration, although the respondents who knew a victim of the incident or had school-aged children within household were more likely to worry about the recurrence of mass violence, an increased intensity of worry measure does not tap into the perceived likelihood of victimization. Snedker’s (2006) typology further highlights the issue by distinguishing altruistic worry from vicarious worry about crime and by arguing that the difference between active and nonactive response is the key element. Altruistic worry refers to the form of individual concern for others (family or nonfamily persons), which affects individual behavior, whereas vicarious worry for others does not involve behavioral changes (Ibid. 188–189). In addition to this, although worry about violence can be dysfunctional by reducing quality of life, individual adoptions of protective behaviors may also buffer worry about crime by increasing perceived self-efficacy (Jackson & Gray 2010). In considering research into school shootings, there appears to be a research gap with regards to how school shooting incidents, as a form of community violence, affect parental wellbeing as well as one’s ability to support their children (see Aisenberg & Herrenkohl 2008; Shultz et al. 2014).

The role of emotional proximity to the event signifies that individual responses to mass violence reflect “different ways of dealing with anxiety precipitated by threats to the self” (Jefferson & Hollway 2000, 48) and to loved ones (Heber 2009). Event related experiences also indicate that increased intensity in worry about the recurrence of mass

violence may conflate with enduring emotions such as sadness and grief (Ben-Ze'ev & Revhon 2004, 582). Most of all, memories of events in survey settings, as well as in interviews, are most likely recalled in modified ways. A more comprehensive insight into a person's biography may accentuate different meanings in the retrieval of those memories (Tourangeau et al. 2000; Gadd & Jefferson 2007, 61). To emphasize different consequences that stem from mass violence more thoroughly, one would need more complex case studies and prospective study designs.

6.4 Depressed mood, perceived social solidarity and worry about violence

Given that the Jokela and Kauhajokki shootings were emotionally disturbing events, it is perhaps not that surprising that some individual differences in responses to mass violence are more consistent than others. Persons who expressed depressed mood were more likely to express worry about neighborhood deterioration as well as increased crime concerns when compared to, for instance, individuals who had school-aged children living within the household. The significance of depressed mood in responses to crime is also addressed in prior studies (Stafford et al. 2007; Jackson & Stafford 2009; Hawdon & Ryan 2011; Lorenc et al. 2014). In addition to this, Oksanen and his associates (2010, 24–25) found that Jokela and Kauhajokki respondents who reported depressed mood were more likely: (a) to consider that school shooting incident was not only an isolated tragedy, and (b) thought that similar incidents might reoccur.

The significance of depressed mood in responses to mass violence may relate to the fact that population groups differ in terms of resilience. Trait resilience relates to positive indicators of psychological wellbeing and mental health (Hu et al. 2015). The positive psychology perspective further proposes that individuals have a somewhat strong ability to bounce back from the tragic incidents in which they have had little control (Bonanno et al. 2007; Dutton & Greene 2010; Walklate 2011). For example, a prospective Finnish study discovered that resilience was also one of the major outcomes among students who were exposed to the school shootings in Jokela and Kauhajokki, and that the strength of social relationships also appeared to play a vital role (Haravuori et al. 2012).

Although mental health and depressed mood clearly relate to resilience (e.g. Hu et al. 2015), Beck's depression inventory, by definition, does not measure resilience (see

Windle et al. 2011). Therefore the significance of depressed mood may stem from other issues and especially from increased pessimism. For example, although studies have suggested that the function of social solidarity could prevent depressed mood from occurring after unexpected incidents within one's community, it is also possible that depressed mood simply drives negative appraisals of one's social environment among already overburdened persons (see Rottenberg 2005; Hawdon et al. 2012b). Beyond this, depressed mood may have different manifestations such as in women's postpartum stress, whereas depression symptomatology among older population is perhaps associating with increased risk of chronic illnesses and social isolation (Sharp & Lipsky 2002). Emotional responses are perhaps also moderated by the severity of symptoms. For example, individuals who suffer from severe clinical depression may have very little interest in the outside world (Rottenberg 2005, 170; Bylsma et al. 2011). Yet, people in different groups based on symptom severity, appear to report stronger daily negative affects compared to non-depressed individuals (Bylsma et al. 2011).

In line with the above theory, the role of subjective anxiety might also be relevant here. Clinical studies have shown that there is an overlap between depressed mood and generalized anxiety. The short form of the BDI – as used in this study – may have relatively poor discriminant validity against self-reported anxiety (Richter et al. 1998; Moffitt et al. 2007). Thus, pessimism may stem from the depressed mood–anxiety overlap. Indeed, prior research suggests that anxious individuals are likely to hold more pessimistic judgments and stronger uncertainty appraisals (Lerner & Keltner 2001). Consequently, self-reported anxiety also relates to increased feelings of worry about different types of crime compared to non-anxious groups (Chadee et al. 2009). Further, perhaps apart from being concerned about the ability to control crime and its consequences, depressed and anxious individuals may also simply feel less able to control their worries (Andrews et al. 2010, 6–7). However, it is noteworthy that the study at hand has measured present mood. On the basis of prior research, trait anxiety is perhaps the key indicator that refers to an individual tendency to feel certain emotions more frequently (Lerner & Keltner 2001; Gabriel & Greve 2003; Chadee et al. 2009).

Finally, it was also discovered that persons who had prior victimization experiences in the past five years and were expressing at least mild depressive mood, were among the subgroups with the highest frequency of individuals considered as “extremely worried”

about the recurrence of mass violence. This finding may indicate the fact that individuals in high-risk groups are perhaps those who suffer from depressed mood due to already stressful life environments, which may relate to prior victimization experiences (Bonanno et al. 2007; Lorenc et al. 2013a). It could be further concluded that persons who suffer, for example, from a stressful life environment and are personally more severely exposed to the shooting incidents, are perhaps the ones who need help from empirically supported health care interventions in the aftermath of mass violence.

6.5 Study limitations

There are obviously several issues that affect the validity of the results. To begin with, the present study lacks the longitudinal data design. The results are based only on post-event samples and nor are there pre-event local surveys from the Jokela and Kauhajoki localities available either. To this day, little is known about individual localized incidents, which are likely to evoke social outbreaks of fear nor, for example, how long such reactions will last. To shed light on this issue would obviously require pre-event baseline measures and repeated sample surveys (Warr 2000, 460). Although the present study suggests that worry about mass violence fluctuates across samples and points in time, the results are, however, based on independent cross-sectional survey designs.

Furthermore, in considering study participation, a complete refusal to participate the survey, referred to as “unit nonresponse,” may relate to topic sensitivity. Yet, unit nonresponse may have been limited to those individuals who were severely exposed to the shooting events and therefore refused to participate in the survey. Overall, individual and public interest in the study topic is the key factor affecting individual willingness to respond (Tourangeau et al. 2000, 261–262). Dillman (2000) has further proposed that successful a postal survey would require a response rate of 60–70 %. However, there appears to be a clear trend of decline in response rates in survey research (Groves 2006; Baruch & Holtom 2008, 1150). The response rates in this study are below the average of 52.7 percent rate for survey studies on the individual level. However, when comparing these response rates to the average response rate of regular mail surveys (~ 45 %) the figures for the study at hand are somewhat encouraging (Baruch & Holtom 2008, 1151; Shih & Fan 2008, 257).

Unit nonresponse increases the risk for nonresponse bias. Notwithstanding, a nonresponse rate is itself a relatively weak predictor of nonresponse bias within surveys, and “higher response rates do not necessarily reduce nonresponse bias for any survey or any given estimate.” Moreover, nonresponse biases are actually likely to vary across estimates within a single survey sample as well (Groves 2006, 663). In addition to this, individuals may also refuse to answer specific questions within a survey – referred to as item nonresponse – but this appears to be smaller when compared to unit nonresponse (Tourangeau et al. 2000, 261; Yan & Curtin 2010). Due to unit nonresponse, however, one should pay attention to the fact that it is not an easy task to portray “the whole community” of Jokela or Kauhajoki as such. Although Jokela samples appear to be relatively representative in terms of age and gender, it also appears that male respondents and local residents under age of 30, for example, are underrepresented in both the waves of Kauhajoki data (Hawdon et al. 2012a; Hawdon et al. 2012b). On the other hand, there are no directly applicable population parameters for the Jokela and Kauhajoki areas available. Therefore the representativeness of the data sets cannot be concluded definitively. Perhaps, even more importantly, responses to mass violence indicate the need for more in-depth sub-group analyses and controlling for moderating effects, for instance, across age and gender groups. This would require larger data sets.

In considering the results, the integration perspective suggests that community responses to mass violence take place in temporal sequences according to which the elevated expressions of solidarity decline approximately within six to nine months (Collins 2004; Hawdon et al. 2010). Given that the samples used in this study were collected over a two-month period means that they are, in fact, removed from the time of the incidents (Tourangeau et al. 2000, 64–65). In addition, regression coefficients were also relatively weak (Article III). Thus, the proposed linear path model should probably be tested closer to the occurrence of the incident, which obviously raises ethical concerns. On the other hand, as the proposed linear equations reached statistical significance for the six months post-event measures, some confidence is gained from the results. Beyond this, methodological debate also stems from the fact that linear path models are highly dependent on the assumptions of temporal ordering, yet this linear ordering remains open to criticism (see also Durkheim [1893] 1997, 25). Indeed, Durkheim’s contemporary Westermarck (1906, 13) already argued that:

"... error we commit by attributing objectivity to moral estimates becomes particularly conspicuous when we consider that these estimates have not only a certain quality, but a certain quantity... emotions vary in intensity almost indefinitely, and the moral emotions form no exception to this rule... indeed it may be fairly doubted whether the same mode of conduct ever arouses exactly the same degree of indignation in any two individuals..."

Ben-Ze'ev (2000) has further proposed that affective phenomena can be distinguished into five main types. They are as follows: (a) emotions (e.g. anger), (b) sentiments (e.g. enduring grief), (c) moods (e.g. being cheerful), affective traits (e.g. trait anxiety), and (e) affective disorders (e.g. depression). They are by no means simple phenomena in survey research (Tourangeau et al. 2000). Interestingly, social solidarity is often referred to as a collective sentiment. However, it remains a somewhat open question as to what extent such sentiment is frequent or typical of emotion (see Ben-Ze'ev & Revhon 2004).

It should be further noted that it has not been possible to examine perceived social solidarity in conjunction with perceived social and physical disorder, which are key constructs in the Anglo-Saxon research field (Farrall et al. 2009, 188–189, 226). For example, perceived solidarity is a perhaps less significant factor after being controlled for perceptions of neighborhood disorder (Kanan & Pruitt 2002). Beyond this, most of the measures tapping into perceived long-term social change and the social environment include items for the behavior of specific social groups, particularly young people (e.g. Sampson & Raudenbusch 2004; 324; Jackson 2004, 953; Farrall et al. 2009, 222). Controlling for these measures would have provided important insight, because punitive impulses and individual anxieties about a criminal event and perceived community deterioration are perhaps projected onto specific social groups such as the youth population (Frymer 2009; Nurmi et al. 2012).

Single item measures are also an important issue as such measures are obviously open to measurement error, which cannot be controlled for. By the same token, in order to understand public responses to violent crime, the use of measures for perceived risk, and moreover, frequency of worry for the past year is recommended (Ferraro 1995, 35; Gray et al. 2008, 368). For example, a general intensity measure alone does not distinguish worried individuals from those who may think and feel that mass violence at school poses a serious personal and vicarious threat in the near future. Frequency measures, on the other hand, focus on emotional events of worry for the past year. These measures would

further provide more detailed analyses on worry about school shooting incidents, for example, among parents of school-aged children, which is an under-researched area (Shultz et al. 2014). The wellbeing of parents, as well as teachers, is an important aspect of emotional coping among children and adolescents in the aftermath of community violence (Aisenberg & Herrenkohl 2008; Bondü & Scheithauer 2014a; Madfis 2014a).

Finally, self-reported mental health clearly plays a vital role in responses to mass violence. The strength of the inventory for depressed mood is in its ease of use due to relative shortness (13 items). An inventory also appears to be suitable for research use in not arousing negative reactions (Raitasalo 2007, 47). However, BDI short form and its Finnish version, RBDI, are designed as an aid to clinical work in charting depression (Beck 1988). An interview by a health care professional is obviously needed as screening instruments are only designed to provide an indication about the severity of a possible depressive episode (Beck 1988; Sharp & Lipsky 2002). Moreover, the fact that RBDI has high internal consistency does not mean that it is theoretically the most valid inventory, especially when it is the only inventory used. For example, there are specific scales that assess subjective distress caused by attention-focusing and perhaps traumatizing events in a more detailed way (see Haravuori et al. 2012). In addition to this, trait anxiety is also one of the key indicators and the deeper examination of individual differences in responses to crime and mass violence would benefit from the use of specific state-trait inventories (Beck et al. 1998; Lerner & Keltner 2001; Chadee et al. 2009). For example, depressed mood and state/trait anxiety refer to different feeling states and personal dispositions, which may have a different effect on emotional expressions (Rottenberg 2005).

7 CONCLUSIONS

The present study has examined community and individual approaches in responses to mass violence after the school shooting incidents in Jokela (2007) and Kauhajoki (2008). To conclude, the results highlight that overly sociological arguments should not neglect individual variation in responses to mass violence, whereas individual explanations should acknowledge the social consequences of sudden and horrific incidents.

The community approach has indicated that mass violence within one's neighborhood may create a situation in which elevated levels of social solidarity are expressed in order to reduce the impact of a shocking and attention-focusing event on collective sentiment. Punishment also refers to an emotive process and the sanctioning of the criminal event associates with the increase in a sense of togetherness, which serves to restore predictability and safety. Therefore the "function" of social solidarity is to nurture and to protect collectively held values and beliefs. However, responses to an event are also likely to associate with an individual sense of the failure of community solidarity. This means that an attention-focusing and shocking event within a community may represent a marker of the failure of a neighborhood to regulate its members. Perceptions of the event are further comprised of what has happened and, perhaps, what may happen, adding to negative views of the community. A community response may further open the door for social errors and conflicts. Present studies also suggest that the integrative and disintegrative effects of mass violence may actually occur simultaneously within a community. In addition to the above discussions, mass violence does not necessarily impact the wider community and its collective sentiments. Therefore, it is important to acknowledge that community responses to mass violence are most likely affected by specific incident-related contextual factors.

The individual approach shows that specific socio-demographic factors, such as female gender, are significant indicators that explain individual variation in perceived threat from mass violence. Individuals are not equally exposed to violence either. Due to different emotional proximities to an event, mass violence at schools appears to evoke stronger concerns among those who had lost a friend or have school-aged children within a household. When considering perhaps more vulnerable groups in the aftermath of mass violence, psychological wellbeing appears to be among the key indicators. Depressed mood, for example, drives negative appraisals such as pessimism and stronger individual feelings

of worry, which also moderates stronger perceived unpredictability in the aftermath of mass violence. Yet, emotional stress may stem from already stressful life environments and a lack of social support, and not just solely from the specific incident within one's community.

In considering the scientific gaps, the present study indicates that there is a need for community-based surveys in Finland. It has been long addressed that perceived local social environment is among the most important predictors of expressed fear of crime. For whatever reason, this has been an under-researched area when compared to Anglo-Saxon countries. Meanwhile, so-called community safety programs have been widely adopted in Finland. Perhaps more important, violent extremism has become a major concern among policy makers, which also relates to school shootings incidents and school threats. It could also be expected that incidents have had a further effect on the wider public.

Finally, research into school shootings has been a rapidly growing international research field. More systematic assessments of the impact of school shooting events on communities are, however, required. The research field would benefit from the collaboration across disciplines and research groups, and shifting a focus more broadly towards event consequences within and between communities across different countries with equivalent study designs (Shultz et al. 2014). There is a strong intrinsic value that integration and disintegration perspectives make room for the community response to mass violence approach (Farrall et al. 2009; Hawdon et al. 2010; Hawdon et al. 2011). Furthermore, the emotive process of punishment is at the core of community response, as heinous crimes stir strong emotions such as anger, fear and anxiety. These emotions are deeply rooted and reflect the collective outrage of morality in the aftermath of attention-focusing events. Although strong emotions may have solidarity-enhancing effects, they may, however, create distrust and social divisions as well. Obviously, this also creates the need to pay more attention to individual factors. For example, more detailed studies on the consequences that mass violence at schools has on the parents of school-aged children and other, perhaps more vulnerable community members, are needed. As people react to school shooting events in collective *and* individualized ways, combining the community and individual approaches may deepen our understanding of the event consequences within event-affected communities. At the end of the day, the ability to establish and sustain trust between individuals is one of the most important components of social life. This becomes ever more relevant in the aftermath of horrific incidents.

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